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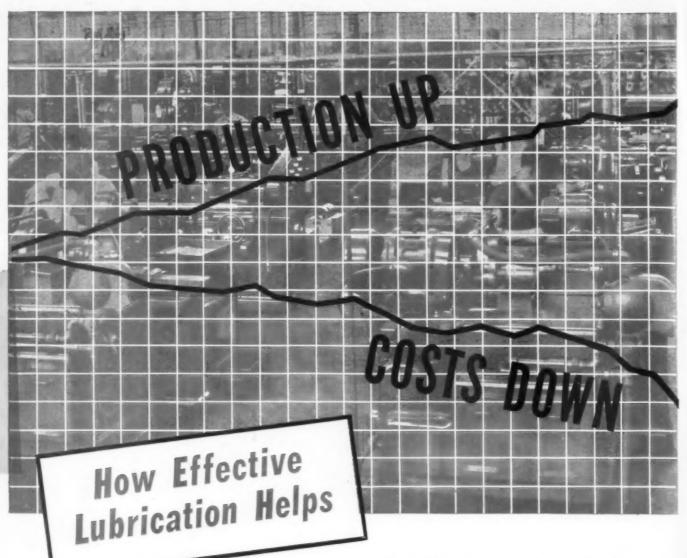
APRIL, 1947

W. S. RANDALL:
THE TEST OF TODAY'S BUYER

SEE PAGE 87

Pages 81.85

A CONOVER-MAST PUBLICATION . 35 CENTS



WHATEVER you make, Texaco effective lubrication throughout your plant can help you make it better, faster, at lower cost. Texaco Regal Oils (R & O) for example, improve efficiency and reduce costs on many jobs.

Developed primarily for steam turbine lubrication, Texaco Regal Oils (R & O) also are showing outstanding service in hydraulic systems and in circulating systems where rust prevention and resistance to oxidation are important.

Texaco Regal Oils (R & O) are spe-

cially inhibited against rust and oxidation, and processed to prevent foaming. Their ability to free themselves rapidly of air and water...to prevent rust, sludge and foam...is assurance of smooth, efficient operation and freedom from costly stoppages.

Texaco Lubrication Engineering Service will gladly assist in the selection and proper use of lubricants to keep your production up and costs down. Just call the nearest of the more than 2300 Texaco distributing plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.



TEXACO Lubricants, Fuels and Lubrication Engineering Service

Tune in ... TEXACO STAR THEATRE presents the NEW TONY MARTIN SHOW every Sunday night. See newspaper for time and station.

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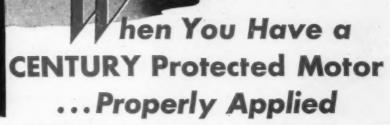


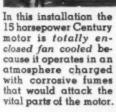


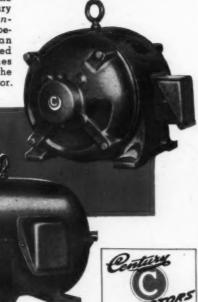
This 5 horsepower Century motor operates a conveyor in a grain elevator in an atmosphere charged with explosive dust.



Because this Century 200 horsepower motor operates a blower in the boiler house of a large generating plant it is protected from falling objects and dripping liquids.







WITH the correct Century motor driving your machine you can have complete confidence that it will provide a long life of satisfactory performance.

From the wide range of standard types and sizes there is a Century motor that will meet the electrical characteristics and atmospheric conditions of nearly every application.

The three examples shown here each require a different kind of motor frame because of the differences in surrounding conditions. In addition to the fact that all three are powered by Century motors — they have other things in common. They are quiet starting, and they run smoothly and quietly due to their unusual freedom from vibration. They have the correct electrical characteristics to give top performance.

Century builds a complete line of electric motors and generators, fractional and integral horsepower, in the popular sizes to meet the requirements of appliances, industrial production and commercial needs.

Specify Century for all your electric power applications.

CENTURY ELECTRIC COMPANY . 1806 Pine Street . St. Louis 3, Missouri

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for mechanical rubber belting and hose, operating conditions of one plant vary from those of another. And rubber products must be exactly suited to the specific working conditions to attain the goal of all such equipment—longest service life. That is why Republic technologists consider each application a special case, specify rubber and reinforcing components according to the requirements. When the Republic belt or hose goes to work, it has properties of resistance to every form of abuse known to exist in the intended service. This specialized attention to your needs begins when you call in your nearby Republic Distributor.

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LEE DELUXE TIRES AND TUBES CONSHOHOCKEN, PA.









Protects your product, improves your shipping package

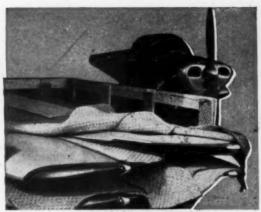
Like a crown on a cushion, your product goes safely to market when you package it with resilient, attractive KIMPAK*. This is true whatever you manufacturewhether it's as rugged as a refrigerator or as fragile as a flashlight bulb. For KIMPAK is designed to do a surer job in all Four Basic Methods of Interior Packaging -Surface Protection . . . Flotation Packaging . . . Absorbent Packaging . . . or Blocking and Bracing. In every method, it gives you the advantages of a clean, flexible, highly-efficient cushion.

Whatever qualities you require in an interior packaging material

-softness, strength, moisture absorption or repellence, cushion, ease of handling-you'll discover them in KIMPAK. Find out how to suit low-cost KIMPAK to your specific problem. Call the local distributor of packaging or shipping materials (listed in the phone book) or write to Kimberly-Clark Corporation, Creped Wadding Division, Neenah, Wisconsin.

We are producing all the KIMPAK Creped Wadding we possibly can, but due to the great demand, your distributor may have some difficulty in supplying you immediately.

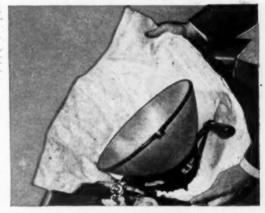
> Kimberly Clark



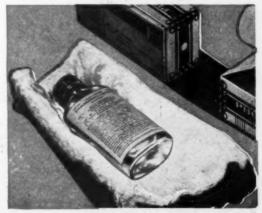
BLOCKING AND BRACING
Photo courtesy Engineering and Research Corporation



FLOTATION PACKAGING
Photo courtesy Chas. A. Stevens & Co.



SURFACE PROTECTION
Photo courtesy Pelton & Crane Co.



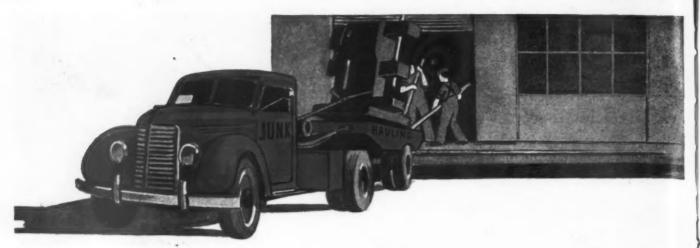
ABSORBENT PACKAGING
Photo courtesy C. B. Fleet Co., Inc.



CREPED WADDING

*KIMPAK (trademark) means Kimberly-Clark Croped Wadding.

AP



WHEN IS A MACHINE "Washed Up"?

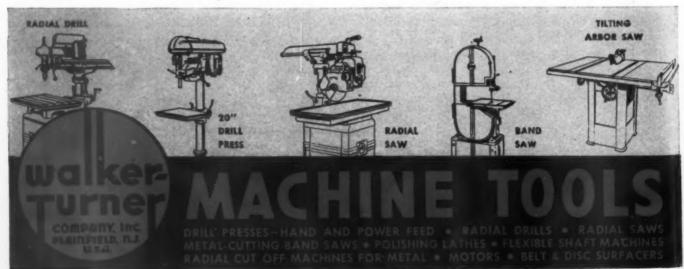
In seven years some say—but in modern production practice it is not a question of years or how much the machine has earned or still owes you. The question is, will your equipment enable you to compete with the new, faster working, more efficient and flexible layouts in your competitors' plants.

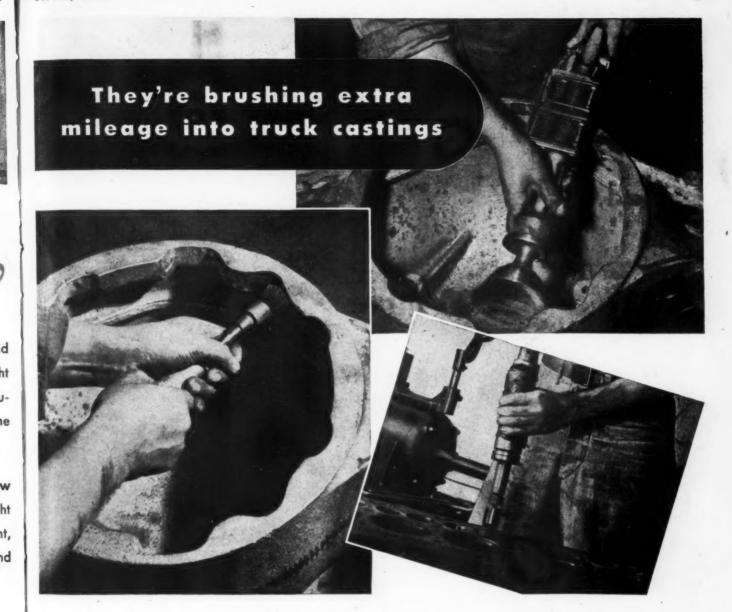
A five-year-old Machine Tool is "washed up", for instance, if it can be replaced by one costing a few hundred dollars that will write itself off in less than a year through improved production. That's the story of Walker-Turner Machine Tools wherever metals, wood or plastics are drilled, cut or shaped.

These machines are "light" only in weight and price. Their production output in the past eight years has astounded the management of thousands of plants—large and small—throughout the country.

A key to high manufacturing efficiency and low manufacturing costs is the modern, flexible, light machine tool. It represents small capital investment, flexibility of operation, increased productivity and low operating costs.

Walker-Turner Machine Tools are sold only by authorized Industrial Machinery Distributors. A general catalog will be sent on request.





THESE large castings will soon serve as rear axle housings and differential carriers for the famous line of trucks produced by The White Motor Company, Cleveland, Ohio. Presence of any loose particles of sand or metal in these castings after assembly might result in serious injury to gears and bearings.

And, here again, you find Osborn Brushes batting in the "clean up" position. First, a Disc-Center wire cup brush (upper right) is used for cleaning the open areas. Then they follow up with a wire end brush (lower left) that burrows into those inaccessible spots where little particles of grit delight in hiding. It's a complete, thorough job and five of these castings are

processed per man hour.

This same working combination of Osborn cup and end brushes is also used extensively for cleaning and deburring engine blocks and parts. Illustration at lower right shows special power brushing tool designed to penetrate piston, valve and stud holes in cylinder blocks.

What's your job? Removing burrs or scale, surface finishing for improving appearance or strength, stripping insulation from wire, cleaning welds? All of these (and many more) are logical jobs for Osborn brushing tools and an Osborn engineer will be glad to show you how it's done with important time and money savings. His services are yours for the asking.



THE OSBORN MANUFACTURING COMPANY

5401 Hamilton Avenue

Cleveland, Obio

WORLD'S LARGEST MANUFACTURER OF BRUSHES FOR INDUSTRY

SPRING LOCK NUT REVOLUTIONARY NEW FASTENER



COSTS LESS THAN NUT

ELIMINATES ONE OPERATION

SURE LOCK FOR BOLT

SPEEDS PRODUCTION

EASILY ASSEMBLED

CUTS TIME . . . MATERIAL . . . COSTS

Here's one of the greatest advancements ever made in the field of fastening devices. A new and revolutionary fastening device developed in the engineering and research laboratories of Garrett's to meet an urgent post-war need.

It replaces the conventional nut and in one assembly operation assures a positive locking action on the bolt. The Diamond G Spring Nut has all the advantages of a regular nut and is adaptable for use in "hopper-feeders" and various types of power wrenches. Because of precision manufacturing it has greater gripping power on threads of screw or bolt and therefore resists loosening. This new Spring-Nut is priced to offer a tremendous saving over conventional nuts and other fastening devices.

Don't delay . . . get your information on this new development of Garrett's today. Write for complete information and prices on the Diamond G Spring-Nut, or just call your local Garrett office and have the Diamond G man show you how you can save with Spring-Nut on your products.

GEORGE K. GARRETT CO., INC.

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● BUCKEYE'S 1088 SIZES of fully finished ready-to-use bearings,—156 sizes of semi-finished cored bars turned on the O D only, and 256 sizes of rough cast bars, both in the popular 13" length introduced by Buckeye, are regularly stocked by leading dealers, in the important industrial markets for your convenience.

Manufactured from selected materials under Buckeye's rigid control of charging ratios and melting and pouring temperatures, these bearings measure up fully to Buckeye's exacting specifications. Each is a quality product, free from parosity, and accurately dimensioned within the required limits, assuring speedy, easy assembly and long efficient service. Send for the Buckeye catalog and order Buckeye Bearings by name from the Buckeye distributors.

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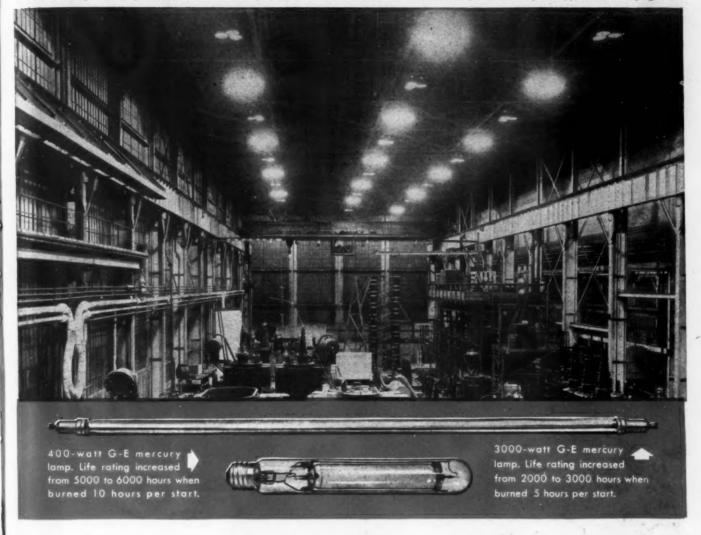
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CLEVELAND 3, OHIO

BRONZE SLEEVE BEARINGS · STANDARD SIZES OR TO CUSTOMERS' BLUEPRINT
IN ANY RECOGNIZED BEARING METAL ANALYSIS

In this large assembly shop, 3000-watt mercury units are combined with three 1000-watt filament lamps to approximate daylight.



Now...1000 Hours more life for G-E Mercury Lamps!

Now even greater improvements in industrial lighting are possible with General Electric mercury lamps. The 1000-hour increase in life ratings for both the 400-watt and 3000-watt lamps means a corresponding reduction in lamp renewal costs, with the same dependable illumination.

As you plan new industrial lighting jobs—especially those with high mounting in assembly shops, steel mills, foundries, etc.—be sure to make the most of these G-E mercury lamp advantages:

1. HIGH EFFICIENCY—Initial light output 40 lumens per lamp watt.

- 2. SUSTAINED LIGHT OUTPUT—Still 35 lumens per lamp watt at 70% of rated life.
- 3. LOW MAINTENANCE COST—High light output per lamp means fewer fixtures to service.
- 4. LONG LIFE—Up to 6000 hours rated life, depending upon wattage and number of starts.

Remember—whatever lamps you need, G-E makes 'em all! So you can always count on your nearby General Electric Lamp office as a reliable and unbiased source of information when it comes to lamp selection. General Electric Company, Lamp Department, Nela Park, Cleveland 12, Ohio.

G-E LAMPS
GENERAL & ELECTRIC

THEYRE BACK-

*RAYTEX FORTIFIED CORD: Dayton Processed, Continuous Filament, High Tenacity Rayon.

COGS on Dayton Cog-Belts are preformed and molded in as an integral part of the belt. Thus Dayton cogs are mathematically correct and true. No irregular spacing or distortion to cause bumping, jarring or "inching" around pulleys. Greatest Y-Belt gripping power while flowing around the smallest pulleys.

V-BELT BUYERS! A leading mill supply house near you stocks Dayton V-Belts.. Look for the name in the yellow pages of your telephone directory

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THE WORLD'S LARGEST

DAYTON COG-BELTS

The Premium V-Bett

Built specifically for use on drives demanding maximum compactness with smallest possible pulleys...shortest centers

Yes, they're here . . . the new, premium Dayton Cog-Belts, successor to the famous Dayton Cog-Belts that made power transmission history on the toughest industrial drives in the United States and twenty-seven foreign countries.

Incorporating all the features of the original Dayton Cog-Belt, this new premium V-Belt offers additional advantages gained by the use of warborn materials and developments...including *Raytex Fortified Rayon Cords...cords that practically eliminate belt stretch, that provide greater flex strength and greatly increased V-Belt life...on the smallest pulleys.

The new Dayton Cog-Belt is a premium V-Belt designed and built especially for V-to-V or V-Flat drives that demand:

SMALLER PULLEYS—Because of their exclusive preformed and true cog construction with die-

cut sides, Dayton Cog-Belts flow easily, naturally, around substandard pulleys while providing undistorted maximum contact arc.

SHORTER CENTERS—Because smaller pulleys can be used, the distance between the motor and driven machine can also be shortened with proper V-Belt contact arc.

The new Dayton Cog-Belt is now in production in many sizes. It is a premium belt at a premium price, built especially for use on drives where maximum compactness with smallest pulleys and shortest centers is essential. For complete information, call your Dayton V-Belt Distributor.

DAYTON RUBBER • DAYTON, OHIO
Branch Offices: Atlanta • Boston • Chicago • Cincinnati
Cleveland • Dallas • Dayton • Detroit • Los Angeles
Minneapolis • New York • Philadelphia • St. Louis

A COMPLETE V-BELT LINE FOR EVERY POWER NEED



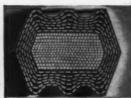
DAYTON THOROBRED V-BELT. For the millions of industrial applications using regular pulley diameters.



DAYTON STEEL CABLE Y-BELT. For those unusual power transmission jobs that demand maximum pull.



BAYTON 0-N-S Y-BELT. For drives where extreme conditions of Oil, Heat and Static are present.



DAYTON DOUBLE ANGLE V-BELT. Where power needs must be taken from both sides of the belt.



CONNECTOR TYPE V-BELT.
Permits V-Belt advantages where endless
V-Beltscannotbeapplied.

Rubbber

MANUFACTURER OF V-BELTS



- ☐ 1. INSULATED WIRES, CABLES—Bulletin describes Collyer varnished cambric building wires and cables, power cables, and special wires and cables, the latter including apparatus cables, shipboard cables and switchboard wires. Collyer Insulated Wire Co.
- ☐ 2. MAILING BOXES—Small booklet describes the Mason Mailmaster which does not require wrapping or tying. They are made from a special box board combining strength and lightness, and are characterized as being "perfect" for all unsealed mail. Boxes are available in wide range of sizes. The Mason Box Co.
- ☐ 3. SILVER SOLDERS Silver Solders and Gold Solders are the subject of bullettin issued by D. E. Makepeace Co. Products include strip, wire or rod, solder rings, solder washers, burred solder, powdered solder, solder filled wire, and solder flushed sheet, discs and wire.
- ☐ 4. HAND POWER-TOOL—Bulletin describes the Precise-40 featured by 40,000 rmp, 1/5 hp, and 40 oz. of tool weight. It can be used as hand tool or mounted in stand, vise, lathe, or milling machine, and is styled the tool of 1001 uses. Precise Products Co.
- ☐ 5. DRILL RIG SWIVEL—Bulletin 343 describes The National Supply Company's Ideal Type R-3 swivel for rotary drilling rigs, and includes life expectancy chart for the main bearing. Bulletin contains 9 explosion photos, blueprint and complete specifications. Wash pipe packing assembly insures positive pressure packed seal that can be removed by one man without disturbing gooseneck or hose connection.
- ☐ 6. ZINC PAINT Small booklet describes MZP—metallic zinc paint for pretecting metal surfaces. Applications include roofing, tanks, conveyors, transmission towers, power machinery, bridges, etc., etc. American Zinc Institute, Inc.

- 7. INDUCTION MOTOR—Die-cut 4-page folder in three colors, publication No. 188, issued by Electric Machinery Mig. Co., shows cutaway views and details of new E-M Heavy-Duty squirrel-cage induction motors designed for drip and splash-proof construction in large power ratings from 100 to 1000 hp, 1800 rpm and lower.
- ☐ 8. GAS TORCHES—Insto-Gas torches and furnaces for all types of soldering and maintenance work are described in bulletin issued by Insto-Gas Corporation. They have wide variety of uses—soldering, melting metal, removing paint, drying molds, lead welding, etc.
- g. HEAT EXCHANGERS—Bulletin 1614 describes the G-R Twin G-Fin Section, a standard interchangeable, light-weight unit, which is easy to handle and adaptable to a wide range of services. It has no stuffing boxes, packed or rolled joints, and the G-Fin elements are easy to inspect and clean. It can readily be converted from one service to another. The Griscom-Russell Co.
- ☐ 10. FIBERGLAS INSULATIONS Fiberglas insulating wool, panels, metal mesh blankets, pipe, blanket, block, and rigid insulations are covered by bulletin issued by the Owens-Corning Fiberglas Corporation. Insulations weigh from 3 to 9 lbs. per cubic foot, have low thermal conductivity, good sound absorption, high electrical resistance, and are incombustible. Application range is from zero to 1800° F.
- ☐ 11. HARD FACING ALLOYS Bulletin describes Stoody hard-facing alloys which are supplied in welding rod form. Maker states they resist all types of abrasive wear and prolong the life of industrial equipment 200 to 2000 percent. Stoody Company.
- ☐ 12. MATERIALS HANDLING Wide variety of industrial uses of the Mobilift

fork truck are shown by photographic alustrations in bulletin describing this versatile unit, issued by the Mobilift Division of the Vaughan Motor Company. Mobilift is rated at 2000 lbs. on 15-inch load center. Standard masts lift to height of 68 or 108 inches. It is powered by 2-cylinder air cooled motor, and operates on 10 to 20% grades.

- ☐ 13. SOLDERING FLUXES Technical Service Data Sheet No. 5-2 issued by the American Chemical Paint Co. describes Flosol soldering fluxes, which wet oily surfaces, clean and flux perfectly according to the maker. They are for use in the soldering of sheet metal and other products constructed of carbon and stainless steels, brass, copper, tin, terne plate, zinc and galvanized iron. The various grades include liquid, paste and cream types.
- ☐ 14. TOOL TIPPING Tool-tipping with Tocco Induction Heating equipment is described in 4-page brochure issued by Ohio Crankshaft Co., which gives full information on main points to follow in order to obtain a good braze.
- ☐ 15. MATERIALS HANDLING IN PAPER INDUSTRY—"Industrial Logistics in Paper" is title of 48-page booklet issued by Elwell-Parker Electric Co., which deals with logistics in the production of pulp, manufacture and distribution of paper, printing and publishing, and paper converting.
- ☐ 16. PANEL HEATING "Automatic Control of Radiant Panel Heating" is title of manual issued by Minneapolis-Honeywell Regulator Co. It contains diagrams, charts and photographs, information on use of graphs for determining the required performance of a heating installation under control.
- ☐ 17. PACKAGING MATERIALS Brochure issued by Protective Coatings Corp., 16 pages, describes various products for protection of packaged products in transit or storage, including Aquasto (two types); M-V-Aar; Antaqua, waterproof coating; and Plastipeel, for protection of metal parts with peelable plastic coating. Application of Aquastop as case panels or prefabricated bags, and method of sealing to provide completely waterproof package are explained.
- ☐ 18. INDUCTION HEATING Principles of Induction Heating and practical applications in hardening, anneling, brazing, soldering & melting are described in 31-page booklet available from Lepel High Frequency Laboratories, Inc. Photographs and diagrams illustrate some of the many uses of induction heating equipment in the metals industries.
- ☐ 19. CUTTING FLUIDS—"Cutting Fluids" is title of booklet issued by Esso Marketers, which explains the values of different types of cutting oils, gives suggestions on the use of cutting fluids, and describes Esso Marketers Cutting Fluids. Esso Marketers.
- □ 20. HEAT TREATING UNIT Bulletin describes the DoAll gas fired heat treating unit. The Model CH Unit is completely equipped for heat treating all types of water or oil-hardening steel to obtain definite physical characteristics by heating (Please turn to page 16)

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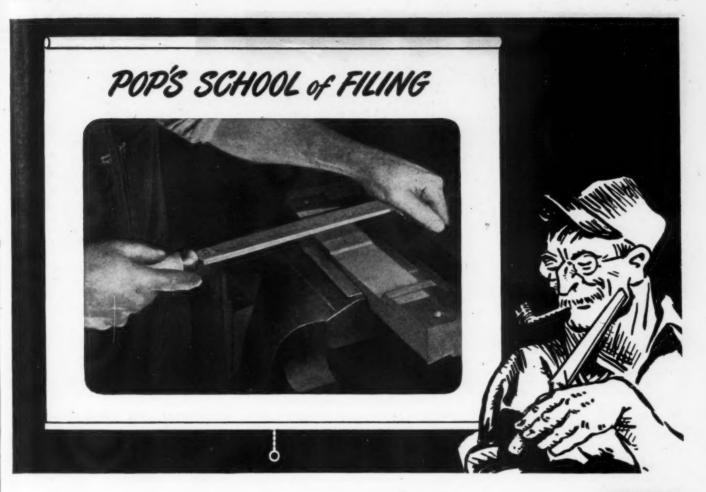
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"PLAY IT SAFE WHEN FILING A DIE"—says Pop the Foreman

THE exacting requirements of diemaking put an extra-high responsibility on using The right file for the job. To guard against irregularities, inaccuracies, or too much metal removal, many operations (as in corners) call for machinists' files with at least one "safe" (uncut) edge. Accurate cut, uniform hardening, and absolute straightness are likewise essential. These qualities are scrupulously maintained in Nicholson files. They are reasons why expert diemakers, by a large majority, choose this world-famous brand.

Action and close-up views show the Nicholson Hand with one "safe" edge. A good assortment of machinists' files suitable for general

diemaking consists of the following shapes and cuts for "roughing" and finishing.

HAND - Bastard double cut with one "safe" edge.
HAND FINISHING-Smooth double cut with two "safe" edges.

PILLAR-Bastard and Smooth double cut with one "sate" edge.

SOUARE BLUNT — Bastard double cut.

ROUND - Bastard spiral (double) cut.

HALF ROUND TAPERED — Bastard double cut back and flat side; Smooth single cut back and double cut flat side.

THREE SQUARE TAPERED - Bastard and Smooth double cut.

For small precision dies, ask about the wide variety of Nicholson X.F. Swiss Pattern Die Sinkers Files and Rifflers.

For The right file for the job and the sweeping guarantee of Twelve perfect files in every dozen ask your industrial distributor for Nicholson or Black Diamond brand.



NICHOLSON FILE CO. . 28 ACORN STREET, PROVIDENCE 1, R. I.

(In Canada, Port Hope, Ont.)





NICHOLSON FILES FOR EVERY PURPOSE

☐ 36. TUBE SIZE for Machining—Data Chart B-3, "Calculation of Nominal Tube Size Required to Machine to Finished Di-mensions", is available from Peter A. Frasse Co. It tells how to calculate the proper size of tubing stock. Both O.D. and I.D. chucking are covered.

37. WIRE RECORDING—The Pierce Wire Recorder for dictation and typing, utilizing magnetic wire recording in an electric-electronic operation, is described in bulletin available from Mills Recording Equipment Co. Has multitude of uses including dictation, taking inventory, reporting, recording convention sessions, etc. Sound waves are recorded on fine stainless steel wire.

☐ 38. COLOR DYNAMICS—"The scientific utilization of the energy in color to promote efficiency in industry" is subject of Pittsburgh Plate Glass Company's booklet on Color Dynamics. Text and illustrations cover use of color on walls, ceilings, floors and aisles, and on machinery.

39. INSULATING VARNISHES—Booklet of 40 pages which contains complete technical and application data on G-E insulating varnishes, has been issued by the Resin and Insulation Materials Division of the General Electric Chemical Department. 36 grades are described.

1 40. CLEANING COMPOUND - Troign Elektro-Purj-It cleaning compound, which is featured by reserve strength, and dustless, non-caking, fast acting properties and claimed to make for reduced cleaning costs is described in bulletin issued by The Tro-jan Products Department, The Diversey Corporation.

☐ 41. BEARINGS—"Fight Friction" is title of bulletin issued by the National Bearing Division of the American Brake Shoe Co., which describes "Tiger" bronze, cored and solid bars, and tin-base, lease-base and "397 Silver" babbitt.

☐ 42. DIE-LESS DUPLICATING—The Di-Acro system of Die-Less Duplicating is described in Catalog 46-11 issued by the O'Neil-Irwin Mfg. Co. Benders, shears, and brakes are illustrated and described in detail; parts duplicated are illustrated, and case records of uses are described.

☐ 43. BROACHING MANUAL—Instruction manual containing detailed data plus instructions for the installation, operation, servicing and maintenance of Lapointe standard broaching machines is available from The Lapointe Machine Tool Co.

44. FITTINGS, VALVES, ETC. Over 1100 sizes, types and styles of tube fittings, hose fittings, brass pipe fittings and shut-off valves are listed and described in new industrial catalog No. 350 just issued by the Imperial Brass Mfg. Co. It also describes cutters, flaring tools, benders, swedging tools, welding, cutting and soldering equipment, fuel strainers, etc. Chart shows how to recognize various types of brass fittings.

(Please turn to page 19)



(Continued from page 14) quenching and drawing. Unit is said to eliminate guess work and give more accurate control. It constitutes a complete heat treating department in one unit.

21. HINTS FOR STENCIL USERS—Small booklet of 16 pages contains Useful Hints To Stencil Users. It describes Polychrome stencil which can be cut on noiseless, standard and electromatic typewriters. Polychrome Corp.

22. MICROFILM MACHINE — Catalog describes the Recordak modern system of microfilming, made by Recordak Corp., subsidiary of the Eastman Kodak Co. System includes complete line of microfilming, viewing, projecting and enlarging equipment, as well as films and processing. Line includes equipment for commercial models for 16 mm, microfilming; microfile models for recording large documents on 35 mm. film or alternately on 16 mm. film, readers, etc.

23. FLASH-BUTT WELDING - Bulletin 130-A gives detailed information on Sciaky Bros., Inc., series BV and BMV flash-butt welding machines for mild steels, alloy steels, aluminum and other non-ferrous metals and alloys.

7 24. OFFICE CHAIRS—Bulletin D95 issued by the Domore Chair Co., Inc., illustrates and describes executive chairs, the 'Air-Duct" chair that breathes, and various types of posture chairs.

25. ELECTRONIC DICTATION—Bulletin describes the new Mercury Edison Electronic voice-writer for desk use. Cylinders are said to give life-like reproduction of voice, modifier on transcribing instrument making possible to "tune-out" surface noises. Edison Laboratories.

☐ 26. BRIGHT COPPER PLATING—Bulletin describes the Mac Dermid bright copper plating process which offers advantage of mirror bright deposits directly from the bath, low brightener consumption, operate at low temperature and low concentration, and excellent adhesion and throwing power with bright plating range. Mac Dermid, Inc.

☐ 27. TAPPING TOOL—Jarvis Torquomatic a universally adaptable torque-driven tool that operates without pressure on the tap itself, is described in bulletin just issued by Charles L. Jarvis Co. It is recommended for extreme speeds, greater accuracies, etc. and maker says it will tap from soap to copper or chrome nickel steel, give troublefree performance producing quality threads along with increase in tapped holes per hour.

28. LETTER OPENER—Bulletin describes Lightning letter openers made by The Bircher Company, Inc.; also, Lightning mail sealers. Power driven machine opens 500 letters a minute, hand-operated machine 200 a minute.

29. FLEXIBLE METAL TUBING—Bulletin describes American Seamless flexible metal hose made by the American Metal Hose Branch of the American Brass Co., for conveying steam, liquids, and gases. Illustrations show multitude of uses in product and machine design, connecting moving parts, etc. Various assemblies are illustrated.

☐ **30. RECORDING SPEEDOMETER**—The Sangamo Tachograph, a recording speedometer which furnishes daily graphic record of a vehicle's operations, miles traveled, speeds traveled, time and place of stops, time out for stops, etc., is detailed in bulletin SU-3A just released by Wagner Electric Corp. Fleet operators will find this bulletin of much interest.

31. TRANSMISSION BELTING-Monarch brand transmission belting is featured in 4page folder released by Hewitt Rubber Division of Hewitt-Robbins, Inc. Belting is especially recommended for heavy duty service. Belt is featured by absence of folds and seams, and either side can be applied to pulley.

32. CONDUIT FITTINGS, Solderless Connectors—New 144-page catalog announced by O-Z Electrical Mfg. Co., covers fittings, cable terminators, junction boxes, solderless connectors, power connectors and grounding devices.

33. GLUED UNIT LOADING Progress report on Glued Unit Loading which prevents lateral or lengthwise shifting of loads, issued by the A.A.R., Freight Loading and Container Section, is available from Na-tional Adhesives, Divn. of National Starch

34. LOCK NUTS-Gripco lock nuts, made the Grip Nut Company, featured by simple deflection of the thread which provides a controlled frictionlock, and selflocking U-Bolts nuts, are covered by new

□ **35. HEAT TREATING**—Endothermic and Exothermic types of furnace Atmosphere generators and their application to a wide

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FORD TRUCKS
LAST LONGER!

That a what Mr. R. G. Colvert of Ardinare, Okiohoma, wrote recently.

"One of our Ford Trucks 11 years old," he added, "has gone over 250,000 miles and it's still on the job, with lots of good miles in it!"

ONE big reason - FORD BRAKES STAND UP!

The wide, heavy, cast drum surfaces of Ford Brakes are non-warping and score-resistant. They are interlocked and fused with steel drum discs during casting, providing great strength and reducing weight. The two shoes are independently anchored, each shoe being actuated by its own hydraulic piston. Adjustment is extremely simple and entirely external. Brakes are exceptionally stable in adjustment. Entry of water and dust is minimized by closely fitted tongue-and-groove design, where edges of drums meet backing plates. Ford brake design promotes long lining life, consistent performance, extra-safe stopping ability and easy pedal pressure.





The Ford heavy duty chassis is available in 1½- and 2-ton nominal ratings, and in 101", 134" and 158" wheelbases in Cobver-Engine type and 134" and 158" in Conventional type. Standard Ford 12-foot Platform Stakebody and Ford cab on 158" Conventional chassis are shown.

ONLY FORD GIVES YOU ALL THESE LONG-LIFE FEATURES: Your pick of power—the great V-8 or the brilliant Ford Six—extra-strength frames, with siderails doubled in heavy duty models—new Flightlight, 4-ring, oil-saving pistons—full-floating and 3/4-floating axles, with axle shafts free of weight-

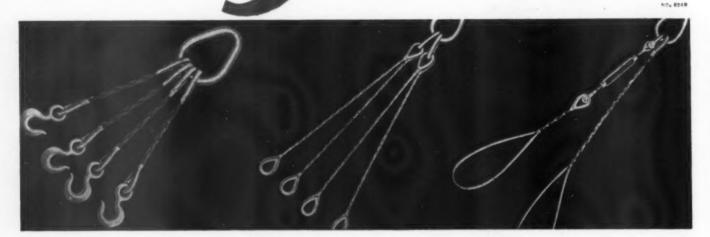
load . . . more than fifty such endurance-engineering features in all. It's because of this long-life construction that of all trucks 14 years old or older on the road today, there are more Ford Trucks than all other makes combined! More than 100 body-chassis combinations to choose from. Ask your Ford Dealer to show you!

MORE FORD TRUCKS IN USE TODAY THAN ANY OTHER MAKE!



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Distributors throughout the U.S. A. and other countries



(Continued from page 16)

- ☐ 45. PUMPS—Turbine-type and centrifugal pumps are subject of catalog issued by Aurora Pump Co. Mixed flow pumps, sump pumps and condensation return units are included.
- 46. SILICONES—Third edition of catalog describes "Dow Corning Silicones, New Engineering Materials" — compounds and greases, fluids, varnishes and resins, and silastic—elastic material for molding, extruding, coating, etc. Dow Corning Corp.
- ☐ 47. ROPE SIZES & STRENGTHS—Chart available from Plymouth Cordage Co. shows Safe Loads for new standard lay, three-strand, Manila rope slings, spliced endless, and Rope Sizes and Strengths, specifications being for three-strand rope with standard lay. How many copies do you need for various departments?
- ☐ 48. PYROMETER SUPPLIES—Pyrometer Supplies Buyers Guide which "reduces the often complex job of ordering pyrometer supplies to A.B.C.'s", No. 100-1, is available from Pyrometer Supplies Department, The Brown Instrument Co.
- 49. SOCKET SET SCREWS—Samples of Ground Thread Socket Set Screws are yours for the asking, from the Parker-Kalon Corp.
- ☐ 50. VALVES AND FITTINGS Catalog
 No. 42 details the Walworth company's complete line of valves, fittings, and pipe wrenches.
- ☐ 51. BRUSHES "Know Your Brushes" is title of catalog describing the Solo-Horton Brush Company's comprehensive line of brushes; over 1500 brushes listed — industrial, paint, building maintenance, glue, paste, oil, sign writers, etc.
- 52. MATERIAL HANDLING Catalog describes Wright cranes, hoists and trolleys, designed to reduce handling and mainte-nance costs. Wright Manufacturing Div., American Chain & Cable.
- 53. REFRIGERATION-AIR CONDITION-ING—"New Industrial Dimensions" is title of book available from General Electric,

- described as a new guide to industrial refrigeration and air conditioning. 17 case histories tell how important industries save money, cut overhead and increase production. Air Conditioning Department, General Electric Co.
- ☐ 54. INDUSTRIAL TRUCKS—Bulletin describes the Palletier electric industrial truck which enables operator to spot and tier without moving from seat. Crescent Truck
- 55. WIRE WHEEL BRUSHES-Folder No. 538 illustrates Thor wire wheel brushes which are made in sizes from 4" to 12" diameter, with wire from 30 to 36 gauge. They are available in single unit, arbor hole adaptor or metal center sectional types. Independent Pneumatic Tool Co.
- ☐ 56. STEELS—Warehouse Stock book issued by Crucible Steel Co., lists full range of steels-high speed, tool, die, stainless, alloy, machinery, and special purpose, now available, and contains descriptions, applications, heat treating, and working instructions.
- 57. RHEOSTATS, RESISTORS Etc.-Ohmite rheostats resistors and tap switches are covered by Catalog and Engineering Manual No. 40 published by the Ohmite Manufacturing Co.
- 58. CASTINGS—Book of 56 pages describes Howard castings, patterns, and practices, and facilities of Howard Foundry Company for making aluminum, magnesium, brass, bronze, semi-steel castings and patterns
- 59. NAME PLATES—"Designs for Name Plates" is titles of book available from Etching Company of America, which shows over 4500 shapes and sizes of name plates for which the company has dies in stock.
- 60. TRACING CLOTHS Arkwright Finishing Company offers free working samples of Arkwright tracing cloths. Advantages include erasures without "feathering", no discoloration, freedom from pinholes or thick threads, and permanent trans-

- ☐ 61. PLATING—Bulletin bearing the title "Do Better Plating Faster At Less Cost" covering the subject of mechanizing plating rooms, and describing Udylite Semiautomatic Plating machines, is available from Udylite Corporation.
- ☐ 62. WORK GLOVES—Tiger Grip work gloves, made of specially knitted material, are described in catalog issued by the Advance Glove Manufacturing Co.
- ☐ 63. PORTABLE SAW RIGS—Bulletins decribe Bearcat portable saw rigs which are available in two basic sizes in tilting-top or fixed-top models. Model XCO and CO for heavy work, rip or cut off stock up to 9" thick with saw diameter up to 24". Model XJR and JR for factory maintenance, crating and cabinet making, rip or cut off stock up to 4" thick. Tilting top models make a full range of square, angle or bevel cuts up to 45°. The Paxon Co.
- 64. POWDER METALLURGY That is title of new catalog released by Keystone Carbon Co. dealing with powdered metal parts and powdered metal bearings. Catalog shows examples of powder metallurgy applications, and gives detailed information on Selflube porous bearings in porous bronze, graphite impregnated brass, and porous fron
- ☐ 65. FANS—Bulletin 1102 describes Durco prosion resisting fans made by the Duriron Company, Inc. Alloys used in construction are Duriron, which is highly resistant to all commonly used acids except hydrofluoric, sulfurous and oleum; which resists corrosive action of hydrochloric acid; and Durimet which withstands oleum, sulfurous acid, sulfur dioxide and hydrofluoric acid.
- Ge. REFRACTORIES "Carbofrax in in Boiler Furnaces" is title of publication describing Silicon Carbide Refractory made by the Refractory Division of the Carbonrundum Company. Carbofrax is featured by highest possible silicon content, has great strength, high conductivity, and low spalling tendency.
- 67. POLISHING-BUFFING Lathe Catalog 55 covering polishing and buffing machinery made by Hammond Machinery Builders, Inc., describes new "ROL" model which is featured by overhanging base to provide liberal working space, will accommodate either 2 or 3 hp motor, and is multi-V-belt driven from motor mounted inside base.
- ☐ 68. ALUMINUM BUILDING Wire—New bulletin describes Hazard aluminum insuitated building wire as practical substitute for copper wire. Light weight is

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(Continued from page 19)

of outstanding features-1000 feet of 4/0 AWG braided building wire weighing but 385 lbs. Tensile strength is 25,000 to 30,000 lbs. psi. Hazard Insulated Wire Works, Division of Okonite Co.

- 69. DECORATIVE MICARTA—Brochure describing Decorative Micarta, plastic surface material made by Westinghouse has just been issued by the United States Plywood Corporation.
- 70. FOUNDRY EQUIPMENT Wide range of mechanized equipment for the modern foundry is described in 20-page illustrated bulletin entitled "Foundry Mechanization", published by Allis-Chalmers Mig. Co. New portable shakeout and heavy-duty sand scrubbers for use with a wet reclamation system are described.
- 71. PACKING RINGS Bulletin A-909 just issued by Asbestos Textile & Packing Div., Raybestos-Manhattan, Inc., describes Vee-Flex" packing rings, which are espe cially recommended for rams, hydraulic lifts, etc., against hot and cold water, steam, gasoline, oils, air, acids, etc.
- ☐ 72. METAL FINISHES "Protective Finishes for Metals" is title of booklet issued by The Mitchell-Bradford Chemical Co., covering various Black-Magic products for steel and iron, zinc and cadmium, copper and brass, Witch-dip wax base, Witch-Oil for corrosion resistance, and Silco, a glass-base, sprayed and baked inorganic
- 73. PORTABLE POWER TOOLS-Portoower catalog, Blackhawk Mfg. Co., shows how portable hydraulic power tools speed production and maintenance, and describes Porto-Power hydraulic jack equipment and pipe benders.
- 74. BALL BEARINGS Bulletin A-120 covers Dodge Manufacturing Corporation's new line of SC ball bearings, and contains engineering information on pillow blocks, hanger bearings, flanged units, take-up units, etc. Selection tables provide convenient means for selecting the right bear-

75. DIESEL TRACTORS-Use of Dieselpowered tractors on heavy jobs that require flexible power around industrial plants, is stressed in 20-page color booklet, Form 9778, which is full of action pictures. Caterpillar Tractor Co.

- 76. DIE CASTING-Six-page folder describing its fully automatic high speed die casting machine has just been released by Light Metal Machinery, Inc. Operating speeds are listed as 240, 330, 520 and 720 shots per hour. Shot capacity of machine is listed at 16 oz., with casting area of 30 sq. in. Typical castings produced are illustrated. Maker claims machine makes possible 50% to 90% cut in die costs.
- 77. DRAFTING ROOM EQUIPMENT -Catalog 13-S details the Hamilton Manufacturing Company's drafting room equipment—filing units, (metal, wood) tables, drawing tables, tracing tables, drawing boards and accessories.
- 78. FEXIBLE SHAFTING Flexible shafting design and engineering data are given in 20-page, $8\frac{1}{2}$ x 11" bulletin released by Walker-Turner Co. It covers applications in radio, appliance, industrial machinery, aircraft instruments, and special
- 79. V-BELTS, SHEAVES Catalog leaflets 2170 and 2175 cover B. F. Goodrich Company's Multi-V belts and Magic Grip sheaves used with them. Sheave leaflet includes table showing pitch diameters and bushing sizes of stock sheaves.
- 80. PULL PUSH JACK Bulletin covers Util-A-Tool, made by Templeton, Kenly & Co., for pushing objects apart, moving machinery, straightening frames, pulling-in parts, lifting or lowering, pulling gears, etc.
- 31. MAGNET SEPARATORS Folder illustrates typical Homer Permanent Magnetic Separator applications for various manufacuring and processing industries, such as foods, textiles, metals, liquids, plastics, paper pulp, seeds, grain, etc. eliminating tramp iron and steel particles. Homer Manufacturing Co.

- 7 82. COUPLINGS Bulletin 4100 covers Falk Steelflex Couplings and include simplified selection tables for both motor and turbine applications. Selection method outlined is said to make for greater accuracy in selection and simplified installation. The Falk Corporation.
- 83. INDUSTRIAL WIRE CLOTH Re vised catalog, 1947, issued by Michigan Wire Cloth Co., covers wire cloth of various metals, metal filter cloth, and fabricated products - strainers, filters, screens.
- ☐ 84. CRANE CONTROLS Five types of a-c magnetic crane controls for handling any type of load are described in 20-page booklet (B-3853) announced by Westinghouse Electric Corp. Booklet contains wiring diagrams, performance curves and application guide to aid in selecting the type of a-c control best suited to any application.
- 85. CASTERS-Industrial Caster Manual has just been issued by the Rapids-Standard Co., Inc.; 44 pages of general information, technical data and illustrations in four-colors give buyer information on How to Select the Correct Caster for a particular use. Manual also contains descriptions of varied material handling equipment.
- 86. GEARS. REDUCERS Catalog No. 204-E (665 pp.), "Gear Problems and IXL Speed Reducers" is available from Foote Bros. Gear & Machine Corp., makers of industrial gears for every purpose, speed reducers, friction clutches, transmission equipment, etc.
- ☐ 87. AIR HOSE—Specifications and construction features of Monarch brand air hose are outlined in illustrated folder disributed by Hewitt Rubber division of Hewitt-Robins, Inc. Hose is designed for heavy-duty air tool and compressor service.
- 88. METAL CUT-OFF SAWS-Horizontal band saw for cutting metals and other materials is described in Bulletin No. 8, Wells Manufacturing Corp. Capacity—rectangular 8" x 16"; with special guides 5" x 24"; rounds 8". Speeds per minute, 60, 90, 130; mator 1/2 hp; floor space 2' x 6'.
- ☐ 89. DIE CASTING MACHINE—Booklet describes DCMT die casting machine. Operational speeds of 1500 shots per hour have been reached; general production 500 to 700 shots per hour. Maker states runs as low as 1000 die cast parts can be produced economically. Design makes it possible to use inexpensive single cavity molds for high production. DCMT Sales Corp.

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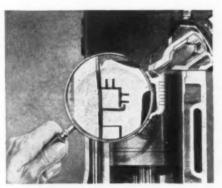
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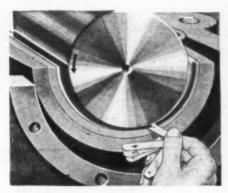
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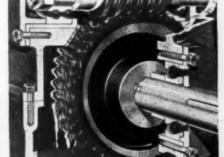
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Every unit in your plant has its own operating characteristics. For instance, the loads on certain gears, the temperatures of bearings. Your Socony-Vacuum Engineer studies all factors.

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With all the facts about your machines, your Socony-Vacuum Engineer is able to recommend the right Gargoyle oil or grease and the best application technique for every problem.





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Your Socony-Vacuum Engineer provides complete lubrication schedules. He helps with storage proLiems and lubrication training. Finally, he prepares progress reports on the benefits obtained.

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Correct Lubrication







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Free machinability, freedom from distortion after machining, and ability to take a high surface finish make Eaton Permanent Mold Gray Iron Castings ideal for gears and numerous other washing machine parts. Their uniformly dense, close grained structure permits holding close tolerances in tooth dimensions.

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Foundry Division engineers will be glad to discuss the application of Eaton Permanent Mold Gray Iron Castings to your product.

Send for your copy of the new booklet, "The Eaton Permanent Mold Process."

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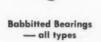
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2115

No. 2039. Spiral Fluted Taps: High Speed Steel (Fractional Sizes)

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No. 2063. Spiral Fluted Taps:
High Speed Steel (Machine Screw Sizes)
Designed for use in aluminum, die-cast metal, soft brass, copper, and stringy metals.

No. 2040. Hand Taps: High Speed Steel
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No. 2066. Machine Screw Taps: High Speed Steelcut Threads (Machine Screw Sizes) No. 2068. Machine Screw Taps: High Speed Steel-Ground Threads (Machine Screw Sizes) Designed for use by hand and by machine power.

No. 2115. Taper Pipe Taps: High Speed Steel—Cut Threads No. 2119. Taper Pipe Taps: High Speed Steel—Ground Threads

Used for tapping pipe fittings, boilers and boiler plates, etc.

No. 2115. Taper Pipe Taps: High Speed Steel—Interrupted Threads Used in copper and stringy materials where taps tend to tear.

> No. 2082. Pulley Taps: High Speed Steel-Ground Threads Same as No. 2046 Hand Taps, but with a long shank. For use in tapping set-screw holes in pulleys with hubs. Also for tapping oil-cup holes.

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Pointed Hand Taps:
High Speed Steel—Ground Threads
(Fractional Sizes)
No. 2067. Spiral
Pointed Machine
Screw Taps: High
Speed Steel—Cut
Threads (Machine
Screw Sizes)

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Designed for use in sheet metal. Work very well in machine tapping of thru holes in all types of materials. This type of tap forces the chips ahead of the tap, so it should not be used in tapping blind holes unless sufficient chip clearance is allowed in the bottom of the hole.

Name your material—and Morse will supply you with the tap which has the right specifications for your particular job. The Morse line of taps is really comprehensive... embracing top-quality cut-thread or ground-thread taps of every type, both standard and special, to meet your requirements.

What's more, when you use Morse taps, you're sure of getting smooth, strong threads... threads which hold because they're cut with precision cutting tools of the highest quality. You'll get no clogging, no damaged threads... and you'll get faster tapping on every job.

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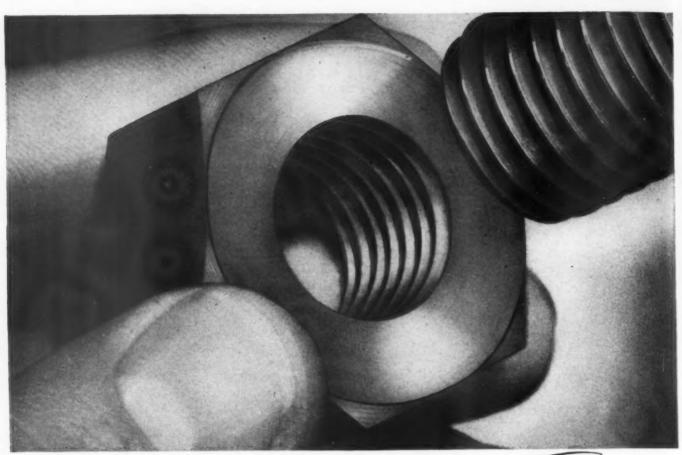
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Since the time and labor costs of assembling a nut on a bolt usually exceed the cost of the fasteners, it's True Fastener Economy to buy the brand that gives maximum speed and convenience in assembly.

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- 1. Reduce assembly time to a minimum by savings through use of accurate and uniform fasteners
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- 3. Reduce need for thorough plant inspection, due to confidence in supplier's quality control

 4. Reduce the number and size of fasteners by proper design
- 5. Purchase maximum holding power per dollar of initial cost, by specifying correct type and size of fasteners
 6. Simplify inventories by standardizing on fewer types and
- sizes of fasteners
 7. Save purchasing time by buying larger quantities from one supplier's complete line Contribute to sales value of final product by using fasteners with a reputation for dependability and finish

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RB&W bolts, nuts, screws, rivets and allied fastening products are manufactured in a broad range of atyles, sizes and finishes.

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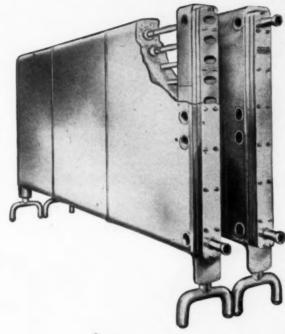
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• The uniform walls of this Stainless Tubing allow you to use gauges that give you faster heating and cooling.

And this same uniformity helps to speed fabrication.

On your jobs where you need full corrosion and heat resistance, specify 100% hydrostatically tested Carpenter Stainless Tubing. You'll find it pays—from first cost to less "down time" for tube repairs and replacements. Dropus a line and make use of Carpenter's long experience with Stainless Tubing problems.





On your jobs where sanitary requirements are rigid you'll find this tubing easy to clean and keep clean.

Easy fabrication is one advantage you get because of this tubing's uniform walls. Coil made from 1" IPS Carpenter Stainless Tubing—Type 316.

POLISHED INSIDE Carpenter Stainless Tubing

To guard against carry-overs from one process to another, and protect against product contamination, Polished Inside Carpenter Stainless Tubing is often used in food, dairy and chemical production. Available in a wide variety of sizes and analyses.





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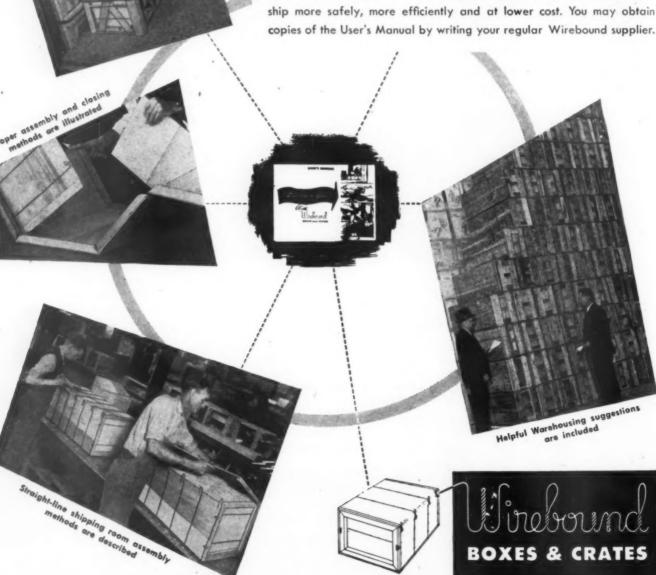
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Here's another reason why Wirebound users

ship more safely . . . more efficiently . . . and at lower cost.

Wirebound Boxes and Crates, which combine the lightness of wood with the strength of steel, are scientifically designed to carry products safely at minimum cost. But in addition to providing careful design and good construction, every Wirebound manufacturer follows through-with details of handling, assembly and shipping techniques to help the user attain higher shipping room efficiency and lower costs.

From the vast experience of all Wirebound manufacturers these details have been gathered and printed under the title "Delivering the Goods"-a User's Manual that will, in these days of continued container shortages, be of special interest and assistance to every Wirebound user. This book is published as another Wirebound service to help users ship more safely, more efficiently and at lower cost. You may obtain



BOXES & CRATES

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Ther offers a full selection of hammer tools for working with wood, brick, stone, metal composi-and other materials.

puts more wallop into every blow. YOU PROFIT BY LOWER JOB COSTS. Let a demonstration show how. Your nearby Thor distributor will gladly arrange one at your convenience.

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PERMITE READY ALUMINUM PAINTS

Originator of READY-MIXED Aluminum Paints



CUT COSTS WITH THESE MILL-PROVED GOODYEAR PRODUCTS



ENDLESS COMPASS BELTS, for compressors, generators, fans, line-shafts and other heavy-duty drives. In countless installations they have outlived and outperformed ordinary belts three and four to one.



STYLE M STEAM HOSE for all steam service up to 100 pounds' pressure. Tough, flexible construction with tube specially compounded to hold saturated steam. Tough cover to resist abrasion.



E-C CORD MULTI-V BELTS are uniform in length, cross section, pull and service life. Their perfect teamwork insures lowest ultimate cost.

When it comes to delivering top-notch performance at rock-bottom cost, nothing in rubber compares with the famed Goodyear trio shown here. Each has established records for long wear and economy in all types of industrial use. And each is specified in the correct construction after careful appraisal of your requirements by the G.T.M. — Goodyear Technical Man.

For a firsthand report on the savings these star performers can bring to your mill, why not consult the G.T.M.? A line will bring him to your plant. Write: Goodyear, Akron 16, Ohio or Los Angeles 54, California.

FOR HOSE, BELTING, MOLDED GOODS, PACKING, TANK LINING, built to the world's highest standard of quality, phone your nearest Goodyear Industrial Rubber Products Distributor.

Compass, E-C Cord-T. M.'s The Goodyear Tire & Rubber Company

GOODFYEAR

THE GREATEST NAME IN RUBBER



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Products Manufactured
Pipe and Tube Fittings
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Supplier of ...
Pipe Valves and Fittings
Specialties for Plumbing, Heating,
and General Piping

Cooling Systems



Can you answer these questions

about REPAIRING CAST IRON EQUIPMENT by welding?

- Q. Is welding a practical way to repair cast iron equipment?
- A. Yes, indeed. Welding saves American industry many thousands of dollars annually by keeping existing cast iron equipment in service.
- Q. Is it harder to weld cast iron than steel or other metals?
- A. Cast iron frequently proves more difficult to weld than other common metals. This is because of cast iron's tendency to change its structure under high heat.
- Q. What is the effect of welding heat on east iron?
- A. Some of cast iron's useful properties depend on a proper balance between graphitic and combined carbon. When cast iron is reheated to the molten state, as in welding, some of the graphitic carbon recombines with iron to form combined carbon. Unless the iron cools gradually, the carbides thus formed remain as combined carbon. An excessive amount of combined carbon in cast iron makes the iron hard and extremely difficult to machine.
- Q. How can this tendency be eliminated?
- A. First, by avoiding excessive heat in the welding zone. Second, by obtaining a slow rate of cooling. Third, by choosing the right welding material.
- Q. What is the best method of welding cast iron?
- A. All have their advantages. For years, oxy-acetylene was the favorite. Now, however, because of recent improvements in electrode composition, the metal-arc method is coming rapidly to the fore.

- Q. What are these improvements in electrode composition?
- A. Research on electrodes for welding cast iron has centered around achieving strong, machinable welds, free from cracks and porosity. At INCO this has meant the careful study of the materials used for core wire and flux coatings in the development of the NI-ROD* electrode.
- Q. Does NI-ROD provide sound, strong, welds?
- A. Extensive use has proved the soundness of NI-ROD welds. NI-ROD's slag does an excellent job of scavenging gas from the weld metal, assuring deposits of maximum strength and freedom from porosity.
- Q. Is preheating necessary with NI-ROD?
- A. NI-ROD flows so well and "washes" so evenly against the sides of the joint that it is usually unnecessary to preheat the joint. However, hard-and-fast rules cannot be formulated to cover all conditions. Preheating to 300-400°F is useful on many jobs to reduce stresses or provide the highest degree of machinability.
- Q. Are NI-ROD welds easily machinable?
- A. Yes, NI-ROD's deposit and weld zone are easily machinable. The deposit is nickel, a metal which doesn't lose its machining characteristics under rapid temperature changes. The fusion zone retains its machinability because NI-ROD's smooth arcing and flow characteristics keep the heating-quenching cycle to a

NI-ROD comes in 32", 1/8", 52" and 36" diameters. Order a 5-lb. package and you'll agree it's the ideal answer to any cast iron welding problem where strong, sound, machinable joints are required.



Be sure to ask for your copy of the NI-ROD instruction booklet.

THE INTERNATIONAL NICKEL COMPANY, INC., 67 Wall Street, New York 5, N.Y.

NI-ROD is distributed by:

WHITEHEAD METAL PRODUCTS COMPANY, INC.
WILLIAMS AND COMPANY, INC.
STEEL SALES CORP.
HENDRIE & BOLTHOFF MFG. & SUPPLY CO.
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How much water does your business drink?

The more water you use in your business — for processing, wetting, spreading, cleaning — the more likely it is that chemistry can help you. For, chemistry changes the characteristics of water, makes it more adaptable, more useful.

Among hundreds of Monsanto Chemicals are many that help industry use water to much better advantage. Some of these chemicals — wetting agents — make water wetter, make it penetrate faster, spread more rapidly, more evenly. Some soften water. Others added to boiler feed water eliminate dissolved oxygen and thus control costly oxygen corrosion. Still others check slime and similar clogging growths that frequently flourish in water. And, of course, Monsanto Chemicals play a highly important part in the entire field of water purification.

This is only an indication of how chemistry can help you make water more useful. Any Monsanto office will give you any further information you wish.

Get New Monsanto Folder "Water and Chemistry"

Described in a new folder are these Monsanto products that help industry do more with water: Aluminum Sulfate.. Ammonia, Anhydrous.. Ammonia, Aqua.. Chlorine.. Santomerse* (Wetting Agents).. Santobrite*

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MONSANTO CHEMICAL COMPANY, St. Louis 4. District Offices: Akron, Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Dayton, Detroit, Los Angeles, New York, San Francisco, Seattle, Springfield, Monsanto (Canada) Ltd., Montreal, Toronto, Vancouver. *Reg. U. S. Pat. Off.





What jobs have you for CARMET to do?

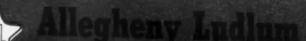
Special Blanks made from

GARMET GARBIDES

Take a look, above, at a few of the many preforming jobs we do with Carmet—then tell us where we can help you to utilize the great wearresistance of sintered carbides. The point is: we have an entirely complete line of Carmet carbide cutting tools and blanks, but we also

specialize in preformed carbide machine parts of practically any size and shape—gage blanks, bushings, die parts, etc.—furnished either "as formed" or finish-ground to exacting tolerances.

• Let us work with you—call for an Allegheny Ludlum Tool Engineer.



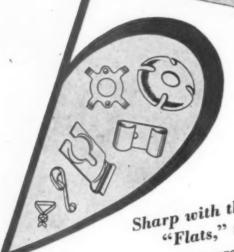
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CARBIDE ALLOYS DIVISION, Ferndale (Detroit) Michigan



SPRING MUSIC WIRE





Sharp with the "Flats," too!

For flat springs and small stamped parts, Wallace Barnes also processes in its own mill many tempers and hardnesses of spring steel to meet requirements of intricacy or endurance.

When spring "specs" says of music wire"-we could call it a Music wire is a well-known standard product and lots of springs are made of it. But with a particular eye to production and performance balance, we use several kinds of music wire, each keyed to special uses. By broadening the field of "standards," Wallace Barnes provides additional possibilities for quality control and economy in springmaking.

Pace Barnes springs. SMALL STAMPINGS . WIRE FORMS . HAIRSPRINGS . COLD ROLLED SPRING STEEL

WALLACE BARNES COMPANY BRISTOL, CONN

DIVISION OF THE ASSOCIATED SPRING CORP. AND IN CANADA, THE WALLACE BARNES CO., LTD., HAMILTON, ONTARIO ot tic

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VACUUM CLEANER FOR HARBOR FLOORS

Another top performance by a BWH product

Keeping harbors safe for shipping is a tough, never-ending job. It calls for dredges to scoop up sand, mud, stone and other channel debris. The dredge's suction hose takes a real beating, because such highly abrasive materials pass through it constantly. What's more, the job must often be done in the face of strong variable winds and changing tides that buffet the vessel and subject the hose to severe strain.

No wonder the owner of a commercial dredging fleet was plagued by hose replacement problems . . . until he called on BWH for help.

Our engineers recommended Perfection Sand Suction Hose, designed especially for the hardest service. The tube through which all dredged materials must pass is made of the toughest, high-grade, wearresistant rubber, tested for durability . . . in gauges to meet any operating needs.

An open-weave breaker strip fabric firmly welds rubber tube and carcass. To give the hose flexibility, a high-tensile spring steel wire is spirally embedded in the rubber. Plies of rubberized duck hold the wire firmly in place, and contribute to the general strength of the hose.

As a companion to Perfection Suction Hose, BWH recommended a Paramount wire-reinforced Dredge Discharge Sleeve. Used as the first connection between pump and pontoon line, the sleeve absorbs strain and prevents kinking. This worked perfectly. Hose and sleeve have now been in operation for a long period ... proof of the economy of quality hose.

Perfection Sand Suction Hose is just one of the many quality products manufactured by BWH. Whatever your need for industrial rubber goods, look to BWH for dependable ruggedness... BWH distributors for dependable service.

HAVE YOU A JOB WHERE STAMINA COUNTS?

Bring us your toughest problems . . . we're specialists in solving them. Consult your nearby BWH distributor, or write direct.

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Distributors in All Principal Cities

WORKS: CAMBRIDGE, MASS., U. S. A. + P. O. BOX 1071, BOSTON 3, MASS.





R/M PLASTIC PACKINGS

Out of R/M laboratories has come a series of plastic packings that have proved particularly satisfactory in meeting special operating conditions.

R/M Style 1840A, shown above, is typical of these packings and is recommended for rods, valve stems, centrifugal pump shafts, and similar applications where temperature does not exceed 600°F. A related type is R/M Style 1840B, which contains a non-frictional metal.

Where packing is exposed to gasoline, fuel oil and other petroleum products, a third R/M Plastic Packing, Style 1840C, is widely used.

These specialized plastic packings are typical of the R/M Packings available to you through your authorized R/M distributor. For every special packing problem, and for your day-to-day packing needs, cail your R/M distributor.



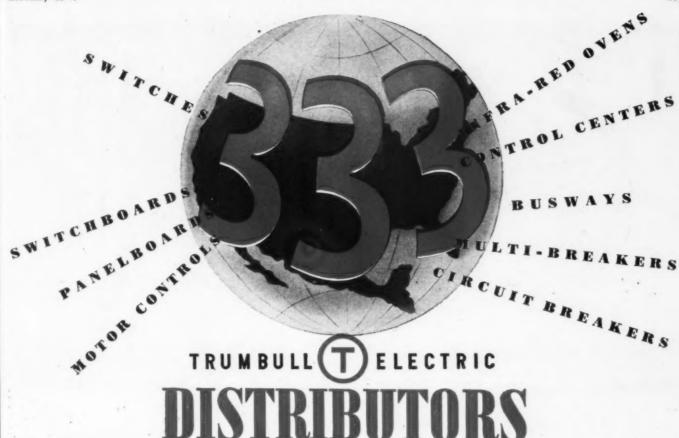


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MANHEIM, PA. . BRIDGEPORT, CONN. . NORTH CHARLESTON, S. C. . PASSAIC, N. J.

IT'S "PACKED WITH SATISFACTION" WHEN YOU USE R/M





.. cover the Country ... for your convenience!

The Trumbull distribution set-up is the outgrowth of careful initial selection and a continuous development and training program. We can truthfully say that our 333 Electrical Wholesalers, with their thousands of men, are well schooled in the Trumbull line . . . are exceptionally able and willing to give you the technical information required for modern electrical installations.

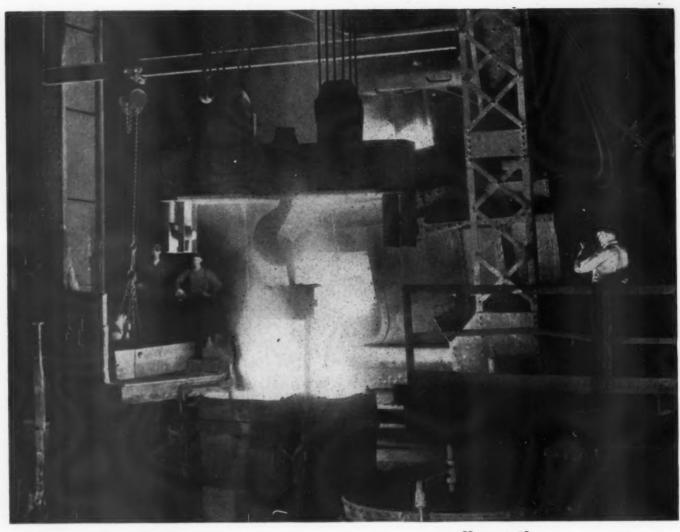
The Architect, whose specifications call for reliability, compactness, appearance . . . the Electrical Engineer who has specific problems to solve . . . the Contractor who wants delivery and competitive prices . . . the Production Manager who seeks cost cutting equipment, better power distribution and control, lower maintenance . . . all need localized service.

Trumbull Authorized Electrical Wholesalers will give it to them . . . from Maine to Miami —from San Diego to Seattle—in every important center from coast to coast.

Forty-eight years ago the Trumbull "Line" was *one* product . . . today it is complete . . . from the simple, inexpensive disconnect switch to interconnected Busways that distribute current throughout the largest industrial plants.

Whatever your requirements, wherever you are, there's an Authorized Trumbull Electric Wholesaler ready to serve you well.

THE TRUMBULL ELECTRIC MANUFACTURING COMPANY PLAINVILLE, CONNECTICUT



Steel is the No. 1 factor in "OK" steel forgings

• If you use steel forgings you know they are unique products in that no single factor determines their value. There is a score of basic factors and a deficiency in any one of them can make a forging a failure.

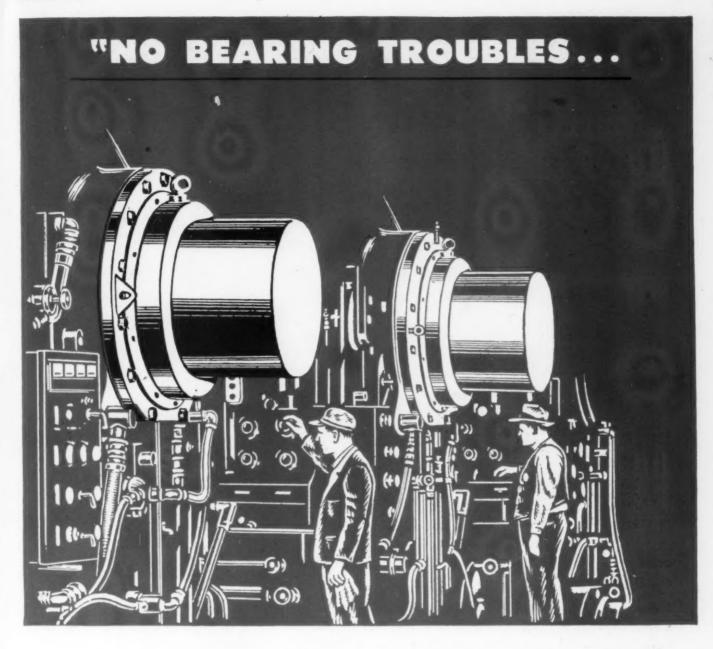
FORGESMITHS

The No. 1 "must" factor of

desired analysis, greater uniformity, establishment of proper grain size, less impurities and "cleaner steel" in every sense of the word.

National Forge also is organized to handle the forgesmithing, the heat treating, and the high precision machining so that all basic factors contribute to forgings that are "Okay-all the way." At National Forge the aim is perfection

course is the steel. That's why National Forge not only makes its own steel but makes it in basic electric furnaces—the process that permits closer adherence to the in these essentials. AND ORDNANCE COMPANY Irvine, Warren County, Pennsylvania



with Tycol E. P. Lubricants"



Boston • Charlotte, N. C. Pittsburgh • Philadelphia

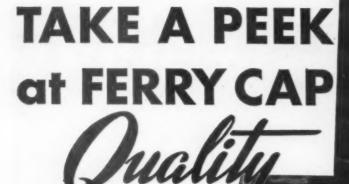
TIDE WATER **ASSOCIATED OIL COMPANY** "Not a bearing overheated . . . Service-life doubled . . . Races undamaged . . . Better performance . . .

Maintenance costs cut . . . "

-were the statements made recently by a lubricating engineer. "Yet," he went on, "the anti-friction bearings in our plant operate continuously under severe heat and moisture conditions-tremendous loads."

This is one of the many uses of Tycol E. P. Lubricants. For more information call, write, or wire your nearest Tide Water Associated Office.

LUBRICATION—"ENGINEERED TO FIT THE JOB"



HERE'S a place where quality really pays dividends.
Because quality is so important, many engine and other manufacturers have enhanced the value of their assemblies with Shinyland studs.

Shinylands of the usual Ferry Cap high quality are furnished to regular milled stud standards with this additional feature—the land between threads a shiny, bright mirror-finish.

Shinylands are carried in stock in standard catalog sizes in bulk and in attractively labeled packages; sizes, ¾" dia. and under.

See this achievement in Ferry Cap stud production. Send for samples of Shinylands.

When ordering from your distributor insist upon Shinylands.

Simply Specify

SHINYLANDS for studs with land between threads, shiny, bright mirror-finish.

SHINYTHREADS for studs with aircraft quality, bright, shiny threads.

SHINYHEADS for hexagon head cap screws of high carbon C-1038 steel, full-finished, bright, shiny heads.

The FERRY CAP & SET SCREW Co.

Pioneers and Recognized Specialists Cold Upset Screw Products since 1907

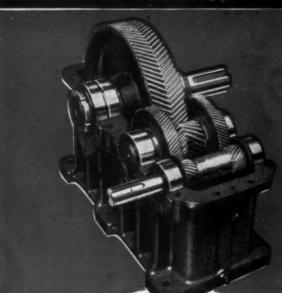
CAP AND SET SCREWS • CONNECTING ROD BOLTS • MAIN BEARING BOLTS • SPRING BOLTS AND SHACKLE BOLTS • HARDENED AND GROUND BOLTS
SPECIAL ALLOY STEEL SCREWS • VALVE TAPPET ADJUSTING SCREWS • AIRCRAFT ENGINE STUDS • ALLOY STEEL AND COMMERCIAL STUDS • FERRY PATENTED ACORN NUTS

To help you solve THE PRODUCTION PROBLEM

JONES WORM-HELICAL SPEED REDUCERS for vertical shaft drives

These machines fill a long felt need for double reduction units of the fully enclosed type to be used for agitators, mixers, ore roasters, bending rolls, etc., requiring a vertical shaft drive. Built in standard ratios in various types of assemblies ranging from 40 to 1 to 250 to 1 for all common motor speeds and a wide range of horsepower ratings. Jones Bulletin No. 75

covers complete details.

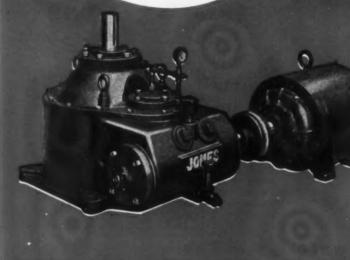


JONES HERRINGBONE SPEED REDUCERS

• Jones Herringbone Speed Reducers are built in single, double and triple reduction types with α large range of ratios and ratings making it possible to fulfill all ordinary requirements by the selection of standard units.

All these reducers have heat treated gears, ground shafts and are mounted with anti-friction bearings throughout.

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"JONES DRIVES FOR INDUSTRY"

is the title of a 16-page bulletin that may be helpful in giving you a broad picture of the Jones products, engineering services and manufacturing facilities that are available.

Just ask for Bulletin No. 80

W. A. JONES FOUNDRY & MACHINE CO. 4453 Roosevelt Road, Chicago 24, Illinois



Jones

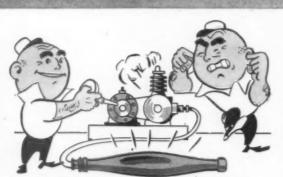
HERRINGBONE-WORM-SPUR-GEAR SPEED REDUCERS . PUL-LEYS . GEARS . Y-BELT SHEAVES . ANTI-FRICTION PILLOW BLOCKS . FRICTION CLUTCHES . FLEXIBLE COUPLINGS

For men who won't take wooden nickels

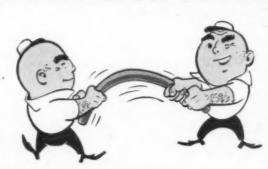
The welcome mat at Bundy is always out for men who won't take wooden nickels,

Manufacturers have a right to be skeptical

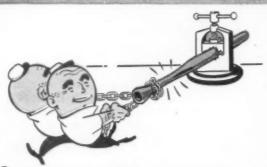
until they've seen the proof that Bundyweld Steel Tubing is superior . . . different. And to provide that proof, here's the story of superiority our design engineers tell:



IN PRESSURE applications, for example, Bundyweld $\frac{1}{4}$ " x .028" Annealed Steel Tubing has an ultimate bursting strength of 12,500 pounds per square inch.



WHERE VIBRATION occurs, Bundyweld counters with a record of unusually high fatigue strength to insure against failures.



3 BUNDYWELD'S ultimate tensile strength (annealed) is 45,000 to 52,000 P.S.I. . . . yield strength, 30,000 to 36,000 P.S.I. . . . percent elongation in 2", 30% to 40%.



WHEN IT comes to temper, Bundyweld Steel Tubing can be furnished either with a soft anneal or hard drawn as required.

BUNDYWELD



Bundyweld Tubing is made by a process entirely different from that used in making other tubing. A single strip of copper-coated S.A.E. 1010 steel is continuously rolled twice laterally . . .



. . . into tubular form. Walls of uniform thickness and concen-tricity are assured by the use of close tolerance cold rolled strip. This double rolled strip passes through a furnace where the . . .



alloys with the double steel walls. After brazing and cooling, it becomes a solid double wall steel tube, copper brazed throughout 360° of wall contact...



. . . copper coated inside and out, free from scale, closely held to dimensions. Hard or annealed in standard sizes up to $\frac{5}{6}$ " O.D. Special sizes cold drawn to specifications.

No wonder, then, that Bundyweld Steel Tubing is specified by hundreds of discerning manufacturers for products ranging from motor vehicles to refrigerators and from gas ranges to Diesel engines. If your requirement is for outstanding mechanical properties, let us tell you more about Bundyweld. Also available in nickel and Monel. Write: Bundy Tubing Company, Detroit 14, Michigan.



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bags under roof where sun will create "attic heat."



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bags in poorly ventilated room "Dead" air is

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PACKING ROOMS BAG STORAGE ROOMS

Here, in a nutshell, are the vital "DO's" and "DON'T's" for getting the best and most economical service from your paper bags. These time-tried rules have saved time and money for hundreds of paper bag users.

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Please estimate quantity carefully.

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You can rely on Pittsburgh Brushes for dependable service—every time. They're scientifically designed for long wear. Their perfect balance speeds up work, and they spread paint evenly.

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So, when you specify brushes by Pittsburgh, you can expect the same fine brushes from order to order. Deliveries are prompt, too, for supplies are on hand in 141 Pittsburgh branches—one near you—to serve your immediate needs.

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OLD FAITHFUL GEYSER



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PRODUCTION AND MAINTENANCE BRUSHES, TOO

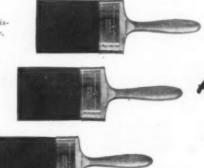
• "Pittsburgh" also manufacture a full line of Industrial Brushes—including Floor Sweeps, Mill Dusters, and Wire Scratch Brushes. Our engineers will be glad to work with you in developing "Even Trim" Spiral Wound brushes of wire, horsehair or tampico to meet your own special finishing requirements.

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Pittsburgh's original and exclusive Bristle-Neoceta, Top quality performance, Costs about 1/2 less,

Pittsburgh's 100% Neoceta.
Costs about half as much as
pure bristle, yet gives excellent
performance and has special
advantages, such as high resistance to water.



AND

AS SOON AS
POSSIBLE
Gold
Stripe

the supreme quality brush for every painting need.

PITTS BURGH
PLATE GLASS COMPANY

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When you need bearing alloys look for This Name-here's why

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AMERICAN SMELTING AND REFINING COMPANY

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STURTEVANT

///hirlwind

AIR SEPARATORS

CUT PRODUCTION TIME AND COSTS

- ullet Increase production of Fines up to 300%
- Capacities from 1/4 to 50 Tons per hour
- Finenesses from 40 to 325 mesh and finer

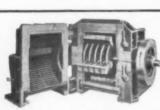
Large or small plants can increase output of accurately sized dry materials and cust costs, too, with Sturtevant Whirlwind Air Separators.

These highly efficient separators select a continuously uniform product of any desired fineness from 40 to 325 mesh and finer. Used in

combination with mills, they will increase production by as much as 300%... cut power costs up to 50%.

Large feed opening, rugged construction, ease of adjustment, low power consumption assure economy of operation and minimum upkeep. Write for Bulletin 087 today.

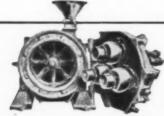
STURTEVANT MILL CO.
107 CLAYTON STREET, BOSTON 22, MASS.



SWING-SLEDGE MILLS for coarse and medium reduction (1" to 20 mesh.) Open door accessibility. Soft, moderately hard, tough or fibrous substances. Built in several types and many sizes.



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RING ROLL MILLS for medium and fine reduction (10 to 200 mesh) hard or soft materials. Operate in closed circuit with Screen or Air Separator. Open door accessibility. No scrapers, plows, or shields.



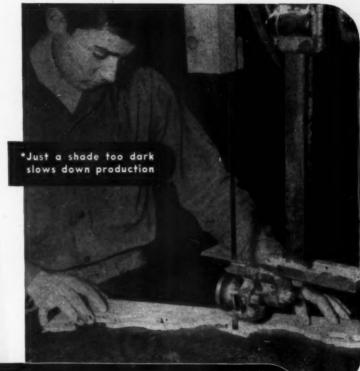
MOTO-VIBRO SCREENS screen anything screenable. Classified vibrations. Unit construction—any capacity. Open door accessibility. Open and closed models with or without feeders. Many types and sizes—½" to 60 mesh.

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may be shading your profits!

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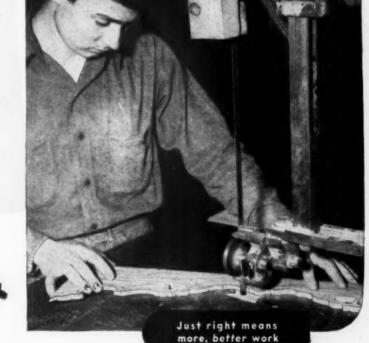


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lamps because they control light. Their high reflection factor puts light to work where it belongs—on the job.

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when vegetables are packed under VEEDER-ROOT

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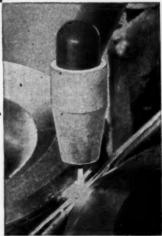
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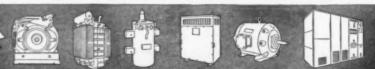


Wagner Explosion-Proof Motor for hazardous-location motor drives.

Wadner

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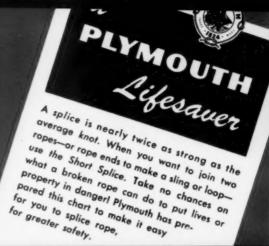
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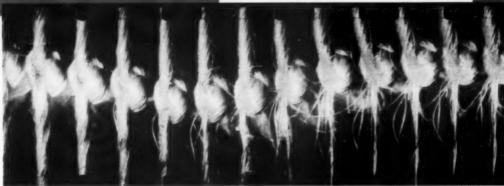
SPLICING vs. KNOTS



aken by a high-speed camera, this series of photographs shows why a knot is unsafe. The rope breaks close to the knot because of the shearing action that a hard pull puts on the fibres there, cutting their resistance to tension.

The use of knots cuts the effective strength of rope—as much as 50%. Check that against the rope strength chart on the other side.

Plymouth Cordage Company Plymouth, Massachusetts



TYPICAL KNOT EFFICIENCIES

In this table, the efficiency of the knot is expressed in the percentage of hauling strength which that knot has, as compared with the actual tensile strength of the rope being knotted. Although typical, these figures will, of course, vary somewhat with the individual knot.

Bowline									*					50%
Bowline	0	n	1	B	iç	gŀ	nt							60%
Square.														50%
Weaver														
Short Sp														
Long Sp														

How to make a SHORT SPLICE



Unlay the strands of the ropes for a short distance, whip ends of the strands to prevent untwisting and put together as in diagram above, alternating the strands from each end.



Now tie down one set of strands temporarily. Taking any strand of the opposite set, tuck it over and under one strand of the rope.



3. Tuck against the twist or "lay" of the rope. What happens is that the tuck goes over one strand, under the second, and out between the second and third.



4. Repeat the same operation with the other two strands from the same end of the rope.



5. Remove tie from other strands. Repeat operation on their side of rope. Continue two more tucks for each of the six strands.



6 To finish, roll and pound rope on hard surface. Don't cut ends of strands off too close! (See top sketch.)

For the tapered splice (see lower sketch) which gives better service, just take two more tucks with each strand, but before the first tuck, cut one-third the number of yarns from each strand. Then tuck. Now, cut strands again, removing one-half of the remaining yarns—and tuck again.

ROPE SIZES and STRENGTHS

NOTE: These specifications are for three strand rope with standard lay. To figure safe loads use at least a 5 to 1 safety factor.

NOMINAL SIZE			WEIGHT	LENGTH NO. OF SEET	GROSS WGT.	FEDERAL SPECIFICATION	FEDERAL SPECIFICATION	
THREADS	CIRCUMFERENCE	DIAMETER	PER 100 FEET (NET)	NO. OF FEET PER POUND	FOR FULL COIL	TR-601a (MANILA ROPE)	TR-631" (No. 1 SISAL ROPE)	
	Inches	Inches	Pounds	Feet	Pounds	Pounds	Pounds	
6-Fine	9/16	3/16	1.40	71.6	50	450*	360*	
6	3/4	1/4	1.92	52.2	50	600*	480*	
9	1	5/16	2.71	36.9	50	1,000*	800*	
12	1 1/8	3/8	3.77	26.5	50	1,350*	1,080*	
15	1 1/4	7/16	5.15	19.4	63	1,750	1,400	
18	1 3/8	15/32	6.14	16.3	75	2,250	1,800	
21	1 1/2	- 1/2	7.36	13.6	90	2,650	2,120	
24	1 3/4	9/16	10.2	9.8	125	3,450	2,760	
27	2	5/8	13.1	7.65	160	4,400	3,520	
30	2 1/8	11/16	14.7	6.82	180	4,900	3,920	
33	2 1/4	3/4	16.4	6.12	200	5,400	4,320	
	2 1/2	13/16	19.1	5.23	234	6,500	5,200	
	2 3/4	7/8	22.0	4.54	270	7,700	6,160	
	3	1	26.5	3.78	324	9,000	7,200	
	3 1/4	1 1/16	30.7	3.26	375	10,500	8,400	
	3 1/2	1 1/8	35.2	2.84	432	12,000	9,600	
	3 3/4	1 1/4	40.8	2.45	502	13,500	10,800	
	4	1 5/16	46.9	2.13	576	15,000	12,000	
	4 1/2	1 1/2	58.8	1.70	720	18,500	14,800	
	5	1 5/8	73.0	1.37	893	22,500	18,000	
	5 1/2	1 3/4	87.7	1.14	1,073	26,500	21,200	
	6	2	105.	.949	1,290	31,000	24,800	
	6 1/2	2 1/8	123.	.816	1,503	36,000	28,800	
	7	2 1/4	143.	.699	1,752	41,000	32,800	
	7 1/2	2 1/2	163.	.612	2,004	46,500	37,200	
	8	2 5/8	187.	.534	2,290	52,000	41,600	
	8 1/2	2 7/8	211.	.474	2,580	58,000	46,400	
	9	3	237.	.422	2,900	64,000	51,200	
	9 1/2	3 1/8	264.	.379	3,225	71,000	56,800	
	10	3 1/4	292.	.342	3,590	77,000	61,600	
	11	3 1/2	360.	.278	4,400	91,000	72,800	
	12	4	427.	.234	5,225	105,000	84,000	

Standards: Smaller sizes of ropes are usually ordered by the number of threads, the larger sizes by circumference. 6, 9, and 12-thread rope is packed in standard 25 and 50 lb. coils. All larger sizes are put up in full coils of 200 fathoms—in half coils of 100 fathoms. One fathom equals six feet.

*IN THE FOUR SIZES INDICATED BY A STAR, present-day Plymouth Manila Rope and Plymouth Sisal Rope flave a minimum breaking strength slightly under that shown in the Federal Specification (TR-601A) columns.

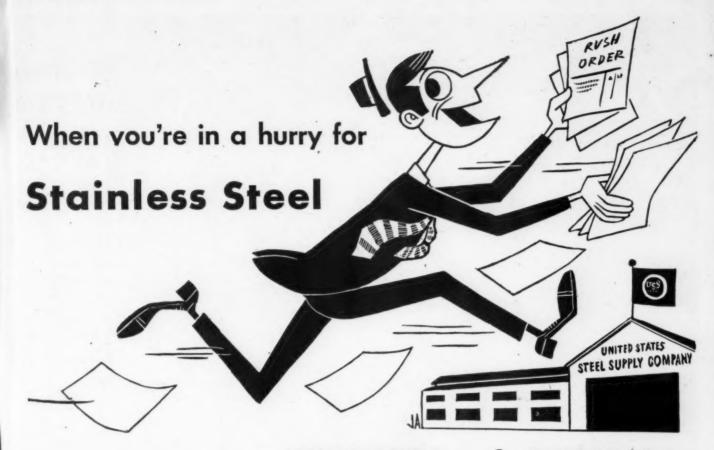
**The figures shown in this column are 80% breaking strength of Manila rope. Federal Specification TR-631 Amendment 2, dated March 15, 1944 permits this minimum breaking strength to be reduced to 75% of that of Manila.

Plymouth will gladly mail you upon request additional copies of this valuable chart for every department of your plant or shop where rope is used. Foremen and workers will find it useful in protecting life and property—saving rope—cutting costs!

PLYMOUTH CORDAGE COMPANY, PLYMOUTH, MASSACHUSETTS. DISTRICT OFFICES: BOSTON, NEW YORK, CHICAGO, HOUSTON, SAN FRANCISCO. WAREHOUSE STOCKS: NEW YORK, BOSTON, PHILA-DELPHIA, BALTIMORE, HOUSTON, CHICAGO, SAN FRANCISCO. IN CANADA: SALES OFFICE—CORDAGE DISTRIBUTORS, LTD., TORONTO. MILL—WELLAND, ONTARIO.



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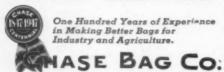
• Right because the twin at left wears an apron fashioned from bags pfinted with Chase Washout Inks... the popular brand that is printed sharply and clearly yet washes out quickly, easily. The Chase label on every bag gives complete instructions.

Housewives the country over are finding more and more practical uses for Chase Bags printed with Chase Washout Inks—for dresses, draperies, spreads, pillow cases, accessories, etc. Actually, it is estimated that between 100,000,000 and 200,000,000 yards of dress print bags were used in 1946.

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F.O.B. filosofy of bruying

WHAT IS a purchasing agent? The Los Angeles Times in a recent report on the activities of J. W. Hughes, Acting Purchasing Agent for Los Angeles County, refers to him as a "high-bracket career spender". And the New York Journal of Commerce, reporting General Al Browning's talk at the annual sales-purchasing dinner meeting of the New York association (which you'll find elsewhere in this issue) captions its story, "Purchasing Agents, Uncrowned VP's".

PERHAPS this item should have been scheduled for the pages on which we report recent business appointments in the purchasing field. Mr. David H. Woog of the National Retail Dry Goods Association, who recently made a survey on the prices people would be willing to pay for merchandise, prefaces his report by declaring: "We have designated ourselves purchasing agents for the public,"

TENNESSEE legislators have very definite ideas of the conditions under which centralized purchasing ought to be adopted. A few weeks ago the General Assembly passed "An Act to create the office of Purchasing Agent in all the counties of the State of Tennessee having a population of not less than 54,110 nor more than 54,120, according to the Federal Census of 1940 or any subsequent Federal Census." Looks as though this is a question of administrative policy that will have to be decided by birth control.

M AYBE this is an example of the sheer ornery nuisance value of a purchasing department, and then again it may have its roots in the very practical question of getting proper official authorization in a tangled political situation. In any event, an Associated Press with an Atlanta date line carries Herman Talmadge's accusation that State

Purchasing Agent W. N. Pate is hampering the collection of \$650,-800 a month in cigar and cigarette taxes by declining to issue a \$1,-187.56 order for ten million revenue stamps as requested. Mr. Talmadge declares that Pate "seems willing to see the state lose \$650,000 a month and the public be denied the right to purchase cigars and cigarettes. On the other hand, it seems likely from this distance that the Purchasing Agent may be prudently avoiding a personal liability for \$1,187 until some confused issues concerning official status and budgetary authorization are cleared up.

OVERNMENTAL BUYERS I have their troubles. Out in Indianapolis, for example, State Purchasing Agent O. F. Heslar is appealing to the General Assembly of Indiana to clarify and change the law under which his department operates. Under the existing statute, he does the buying for all departments, but he is required to buy whatever another department requisitions. He'd like to have it amended so as to authorize the purchasing department to investigate the actual need for supplies before they are bought, and to make it possible for the department to check whether the quality of goods delivered to state institutions and departments meets contract specifications. This is an eminently reasonable request, when one takes the trouble to recall why purchasing departments are created in the first place.

THIS IS the season when the annual reports of companies are circulated, and there is some uncommonly interesting information about the inventory situation to be gleaned from an analysis of the figures. Taking a half dozen examples at random, the total inventory figures are up in dollar value, but not in proportion to the advance in general price indices. In every case, the increase has been most marked

in respect to work in process. One of the companies points out that the ratio of inventories to sales is sharply down from pre-war figures. The 1934-39 average in this company was 23%, whereas for 1946 the ratio stands at 18%. The Commerce Department finds that the spectacular rise in manufacturers' inventories, which was at the rate of 679 million dollars a month as recently as October, seems to be definitely checked. For the three months following, the average rise was approximately 330 million dollars per month, or less than half the previous rate. And though these accumulations carried the total figure to an all-time high of 20.6 billion dollars at the end of January, the advances since the first of the year have been of a spotty nature, and several major industries reported no change or a slight decline.

EXPECTATION that the end of price controls would see the end of black markets has not been realized in fact. Disturbing reports are received from virtually every section of the country. Typical of the conditions cited is the Syracuse area, where asking prices on some types of steel, from previously unknown sources, are as much as 80% above legitimate trade quotations, while ordinary channels for such material are practically empty.

ON'T BLAME the government's stockpiling program for inflationary price advances. It appears that a few producers, relying on the "Buy American" provision, have been quoting prices that include a "bonus" for selling critical materials to the government for this purpose. It wasn't such a good idea, for it brought a prompt "clarifica-tion" from Presidential Assistant John Steelman in the form of instructions to the Army-Navy Munitions Board. The gist of his comment is that purchases for the stockpile should definitely not be at more than the domestic market price, and that "some concession from the market price might even be expected in view of the magnitude of purchases."

S AVE the dates: June 2, 3, 4 for the twenty-second annual Convention and Inform-a-Show of the National Association of Purchasing Agents at the Waldorf-Astoria.

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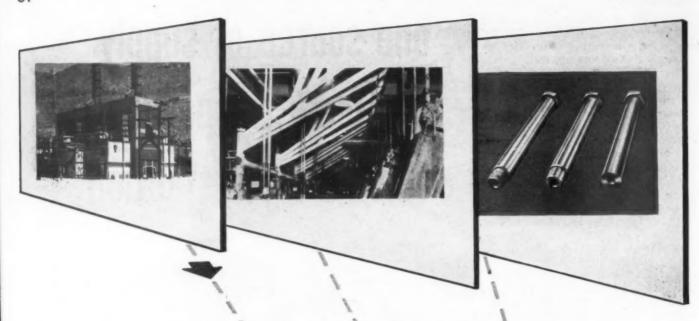


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Glued Unit Loading is of vital interest to all palletized or unitized carload shippers of canned goods, light bulbs, china, bottled goods and all other fragile or crushable materials—regardless of their containers. We'd like to send you a copy of the AAR Bulletin No. 506 on Glued Unit Loading; and we'd like to tell you about LOAD-LOK Adhesive. Address: 270 Madison Avenue, New York 16; 3641 So. Washtenaw Ave., Chicago 32; 735 Battery St., San Francisco 11; and other principal cities. In Canada: Meredith, Simmons & Co., Ltd., Toronto and Montreal. In England: National Adhesives, Ltd., Slough (*Reg. Trade Mark)

Purchasing Previews A Washington Report.....

APRIL 1, 1947

INVENTORY POSITION LEVELING OFF

Trend toward greater accumulation of inventories is grinding to a halt. Increases are still evident in the dollar value of inventories, but this higher figure represents price levels rather than tonnage increases.

As long as prices remain firm, there is not likely to be any tendency toward liquidation of the high inventory level, and Government economic observers indicate that the present inventory level, in terms of tonnage, is not excessive in relation to the volume of sales.

for Purchasing Agents

Optimistic observers forecast that the period ahead will represent a high plateau of business activity, and that during this period, industry can adjust inventories, working off substitute and non-standard items.

Possibility of a break in the economy is viewed in terms of a general trend toward heavy liquidation of inventories. However, there is no indication of any disposition toward such action, nor any element that could force it.

Commodities prices are edging toward still higher levels. The holders of well-balanced inventories have accumulated much of their holdings at price levels well below those currently prevailing. Under such circumstances, it is felt that the edge can be taken off the highly touted recession—whether it occurs some time this year, or during the next.

DISTRIBUTOR MARGINS DUE FOR ADJUSTMENT

General view now is that the adjustments to a normal economy will be in terms of competitive elimination of margins which fattened during the extended period of scarcity.

First slice will likely come in the retailer's margin where, during the war years, markups were widened to compensate for the scarcity of goods. The large volume of goods now available lessens the excuse for extended margins, and at the same time the greater abundance of merchandise brings into competitive focus, creating conditions where price adjustments are indicated if the seller is looking for volume.

Where similar conditions exist at the wholesale and distributor level, a like adjustment is indicated. However, in the industrial distribution patterns there were no adjustments during the war to compensate for a dwindling sales volume—as the volume was sharply increased rather than reduced.

In addition, there has been a considerable increase in distribution costs. Warehousing, transportation and handling costs have gone up.

At the manufacturing levels, materials and labor costs have advanced, and compensating for these higher factors there has been improvement in techniques and equipment.

During the past two years, industry has retooled-with the general objective of getting machines with faster feeds and faster speeds. This will begin to show up in production costs as a factor in offsetting the higher material and

labor costs.

Obviously, when this price reduction factor becomes operative, it will mean that producers who have not kept up in the modernization race, will begin to lose out on the sales level.

OFF-SEASON PROCUREMENT OF STAPLES DISCUSSED . . .

One of the most attractive ideas floating around Government circles is the possibility of influencing normal employment through procurements.

The idea is to plan procurements in order to eliminate as far as possible the rush seasons in manufacturing. This would tend to lesson seasonal unemployment.

While Government itself is no longer the decisive buyer of industrial output, it nevertheless remains the largest single buyer. The proposal is that Government procurement schedules would be studied with a view toward making deliveries on staple items during the off-season for industries producing such staples.

If Government could develop such a technique, and influence other important buyers to follow a similar practice, the proponents of this idea believe that substantial contribution can be made toward eliminating the seasonal

fluctuations in manufacturing.

FOREIGN TRADE CONTROLS TO CONTINUE . . .

While virtually all wartime controls on domestic trade and commerce will have been lifted some time this summer, restrictions on foreign trade are slated to continue over a longer period.

One reason is that some countries would rather deal with the government of this country than do business with

individual buyers and sellers.

Still another is that a large segment of the foreign trade is directly dependent upon the credit arrangements which the government of this country extends. Under such circumstances the trade is, and will continue to be influenced by Government jurisdiction.

A third factor which is held to be a justification of Government regulation is the world scarcity of some products which are in general demand. If the purchase of these items were not regulated, competitive buying would mean

price inflation.

LABOR DEPARTMENT LOOKS AHEAD TO 1950 . .

Department of Labor has taken a long look into the future, and has come up with what it believes 1950 should

be like-if full employment is achieved.

The study is based on the anticipation that increase in productivity will have compensated for higher wage rates and higher returns on investment—and that this can be done with price levels no higher than those prevailing in the summer of 1946.

The report does not claim to be a forecast of the actual level of 1950 prices. Benefit of technological progress can be split up as between lower prices, higher quality or higher wages-or any combination of the three.

Only deduction that is made is that the 1950 pay envelope will be in better ratio to prices then prevailing than was the corresponding wage of the same worker in 1946.

The figure used to represent full employment is 59,000,000. To achieve this total, manufacturing industries will have to employ 2,000,000 more workers than were employed during the high level of employment in 1941.

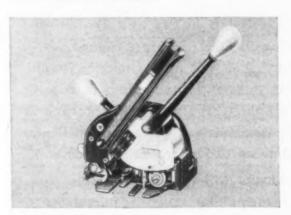
67% SAVING IN TIME AND LABOR

Acme Uni-Pak eliminates shipping damages, losses, complaints, for New York washboard manufacturer

When executives at Albenco Manufacturing Incorporated became alarmed at the high cost of crating materials, labor, and an excessive number of shipping losses, they called an Acme Shipping Specialist. Without charge, he recommended changes that resulted in 67% saving in time and labor, 63% saving in materials, and gave Albenco a better shipping package.

Whether you make washboards or locomotive parts, Acme Shipping Specialists will be happy to advise you on your shipping problems without obligation.

See Acme's record in reducing costs and improving shipping in many industries. Mail the coupon below or write for the illustrated booklet, "Savings in Shipping."



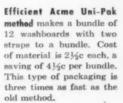
More savings chead for Acme Steelstrap users—No. 3 Steelstrapper, the lightest tool made, is now available. Magazine holds 100 seals. Tensions, seals, and cuts the strap in one operation. Small base requires only 5-inch strapping surface. Two levers working in opposite directions make for better balance and easier handling.

ACME STEEL COMPANY

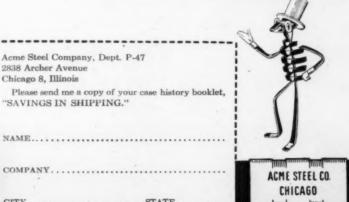
NEW YORK 7 ATLANTA CHICAGO 8 LOS ANGELES 11



The packing job starts with loose washboards like these. Under the old method a bundle of 12 washboards was nailed together with four 18" wood cleats, two on each side of the bundle. Cost was 7c for cleats, plus nails, per bundle.







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Every progressive business stresses good buying — the knack of getting the best ultimate dollar values from purchases. SUPERSTRONG boxes and crates—"Bound with Steel" — are designed for good buying as well as for strength. They bring you substantial reductions in shipping weight, shipping space, storage space, assembly time, damage claims — all adding up to lowered shipping costs. Good buyers will find it profitable to discuss their long range requirements with our shipping experts.

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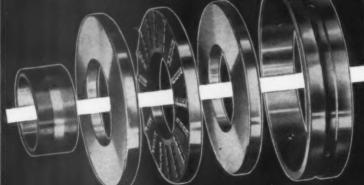
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For the past 20 years, Chicago Rawhide Engineers have concentrated on this problem. In all, more than 400 man years of effort have been devoted to its many phases, on the board and in the field. A lot has been learned in those years.

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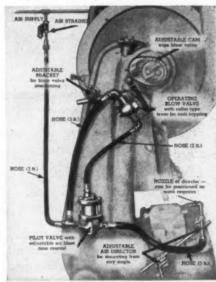
Compressed air efficiently controlled by Schrader Air Ejection Sets eliminates the use of mechanical knockouts or the manual removal of finished work from dies. Parts are removed from the die by a regulated stream of air, timed to a fraction of a second by an air-saving pilot valve. Work may be automatically ejected after forming. Can be timed to eject work at any time during cycle when necessary.

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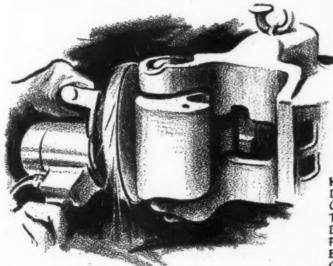
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THE CHANCES ARE THAT SPECIALLY—PROCESSED JEWEL NATURAL GARNET WAS THE "SANDING" MEDIUM THAT BROUGHT OUT THE FULL, MELLOW BEAUTY OF THIS WOODEN BAR. NATURAL GARNET HAS LONG BEEN NOTED FOR ITS UNIQUE ABILITY TO BRING OUT ALL THE LATENT BEAUTY OF WOOD, AND JEWEL GARNET COMBINES THIS ATTRIBUTE WITH THE ABILITY TO DO IT FAST.



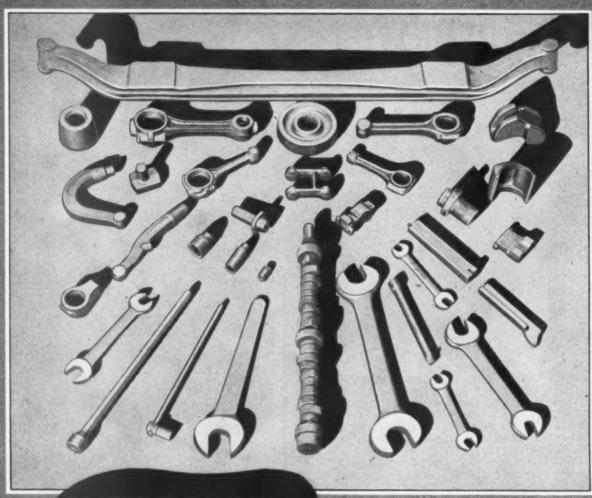


AND THIS BAR GOES INTO A TYPE—WRITER. IT HAS TO BE EXACTLY THE RIGHT THICKNESS. SMALL, FINE DISCS OF JEWEL ABRASIVE GRIND THESE DELICATE TYPE BARS TO A PRECISION FIT, EVENLY, QUICKLY AND SMOOTHLY . . . AND TO SPLIT—THOUSANDTHS OF AN INCH ACCURACY.

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Remember Jewel Abrasives next time you order from your jobber. There's a Jewel product for every grinding and polishing job.





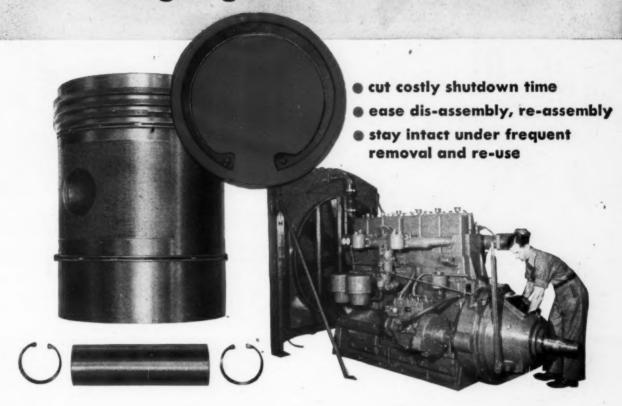
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DROP FORGINGS ANY SIZE OR SHAPE UP TO 200 LBS.

The latest, most modern facilities, including steam hammers, board hammers, forging machines, bending machines, heat treating and die making equipment, are used in the production of Herbrand precision forgings. Enduring, inbuilt stamina is assured in Herbrand forgings through scientific heat treating by definite process in the latest automatically controlled furnaces. Exacting inspection by skilled men assures forgings free from defects. If you require quality drop forgings, in quantities of thousands or millions . . . Herbrand is an excellent source of supply. Your inquiries are solicited.



TRUARC rings lock piston pins securely for drilling engine on 24-hour service



After changing to Waldes Truarc Retaining Rings for piston pin retainers in their powerful new Superior 6G-510 oil-field drilling engine, the Superior Engine Division of The National Supply Company finds field maintenance greatly simplified.

Truarc Rings can be easily removed and replaced in a few seconds. They retain both concentricity and flexibility without regard to the number of times they are handled. Other piston pin retainers take a permanent set, delay field repairs, pile up costs.

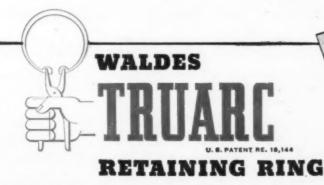
On rocker arms and pumps, on crankshafts and plungers, on a wide variety of applications. Truarc Rings do a better ob of holding moving parts together. Designers, production and maintenance men in many industries find Truarc cuts costs sharply wherever used. Its never-failing grip is a superior solution to fastening problems. Its patented design assures constant circularity under all conditions. Send us your drawings: Waldes Truarc engineers will be glad to show how Truarc can help you.

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"New Development In Retaining Rings"

Please send booklet, "New Development In Retaining



RETAINING RINGS

WALDES KOHINOOR, INC., LONG ISLAND CITY I, NEW YORK

Title

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Business Address

City

Zone
State

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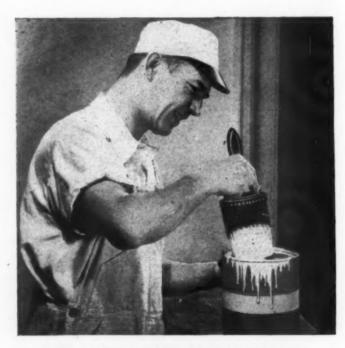
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on the original purchase price of the Rubberset Nylon Brush. It costs less than hog bristle brushes. Much less when you consider all the time and trouble it saves you!



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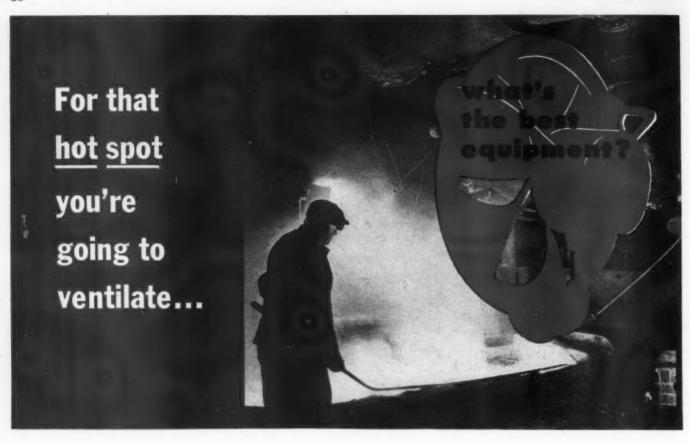


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The National Magazine of Industrial Procurement

APRIL, 1947

Published monthly by

CONOVER-MAST MAGAZINES, INC.
Printed at: Orange, Conn.

Editorial and Executive Offices: 205 East 42nd Street, New York 17, N. Y.

CONOVER-MAST PUBLICATIONS

PURCHASING AVIATION MAINTENANCE

& OPERATIONS MILL & FACTORY

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HARVEY CONOVER - B. P. MAST Publishers

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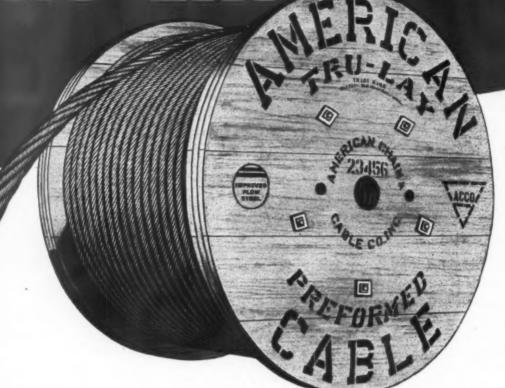
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VOLUME XXII. NUMBER 4, 35c per copy. \$3.00 per year, \$5.00 for 2 years. Extra postage for Canadian and foreign subscriptions \$1.00 a year. Contents are indexed weekly and annually by the Engineering Index Service.

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Page

TRIJ-IAV Preformed



he ALL-AROUND BETTER ROPE

In every successive year since Tru-Lay was introduced (1925) more and still more operating men and purchasing agents have standardized on Tru-Lay Preformed for some or all of their wire rope applications. The reason for this rapid and universal acceptance lies in the fact that Tru-Lay is preformed. Being preformed, the wires and strands that make up Tru-Lay are free from internal stresses and strains. This makes Tru-Lay limber, flexible, easy to bend, and so, highly resistant to bending fatigue. Tru-Lay Preformed resists kinking and snarling, which makes it easier to handle. It resists rotating in sheave grooves and spools better on the drum. When crown wires in Tru-Lay Preformed finally do break, the ends do not wicker and become vicious jaggers. Tru-Lay Preformed is the safer, greater-dollar-value rope. Specify it —in the Improved Plow Steel grade.

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SALES RESISTANCE

S ALES managers in every part of the country and in virtually every line of industry are deeply concerned with the development of sales resistance so stubborn and widespread as to put a serious crimp in the optimistic sales forecasts for 1947. Typically, they have recognized that a buyers' market is on the way, but they have counted heavily on the pent-up demand that was counted on to support full production schedules for a year or two years into the future. That demand has failed to materialize.

The answer, however, is not hard to find. Demand and markets are made up of three factors: the desire to buy, the ability to buy, and the willingness to buy. The first of these—the "pent-up demand"—is present. The second—judging by high employment figures and high national income—is also present. The third—the human or psychological factor which is the essence of a buyers' market—is missing to complete the picture. Without it, the other two are of little avail.

Let's look at some significant situations that are reported in the public press, and should be common knowledge. E. F. Jeffe, Sales Vice President of New York's Consolidated Edison Company reports: Electric refrigerators (up 50% in price) immediately available in most makes and models, waiting lists shrinking; home freezers (up 50%) in oversupply; irons (up 166%) plentiful; vacuum cleaners (up 50%) immediate delivery; washing machines (up 55%) one month delivery.

At the Dallas municipal auction of used cars and trucks, which approximates a free market, average prices realized in February were \$100 less than in December.

Markets do not simply exist. To assume that they do, and to approach the situation either as routine order takers or with high pressure sales methods is as futile as tilting at a windmill. Mr. Jeffe warns appliance manufacturers against complacency. "Adjust or bust!" are the two alternatives he sees.

Markets must be created. The Ford Motor Company has one answer, reported by Vice President Browning in an article on the following pages. That answer is mass pricing, which must precede mass production and mass distribution. There is logic and successful past experience behind that policy. It is the one way to get past the present sales resistance and to put substance in today's phantom demand.

Stuart F. Nemit

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A brief summary of outstanding features of timely interest and importance in this issue, to conserve the time of busy readers



Under new management, the Department of Commerce returns to its fundamental role of personifying Government's Service to Business, and is carrying on a comprehensive program of activities designed to make that slogan a reality. Purchasing men for many years looked upon this de-

partment as their special contact point in Washington, and will welcome the return of that situation. Our Washington editor has talked with the new department heads, and presents an authorized statement of their policy on page 89. It is supplemented by specific statements by five of the bureau chiefs whose work most closely touches the problems of purchasing. In these articles there is a practical guide to the many ways in which the Commerce Department is prepared to serve you, and an invitation to use these facilities.

The cost of Small Orders is traditionally a complaint of the supplier, but a recent survey of the situation by the National Industrial Conference Board indicates that this type of purchasing is expensive for the buyer too. The report of that survey, on page 108, lists six types of orders which come within that category. A thoughtful review of your own practice may point the way to reduce or eliminate this expensive and unsound purchasing habit.



Welding Techniques have been developed in recent years that offer much broader scope for this fabrication method, and many new advantages for the buyer. But you must know something of the technical side of the process in order to profit by its use and to avoid its limitations.

Ned Cady summarizes the basic aspects of the welding process in an informative article on page 101. Here is a timely and important subject, which the author has aptly termed a study in purchase engineering.

Another important article of the "know-how" type is G. E. Henry's discussion of recent progress in the field of Air Conditioning. At first glance, it may seem to be a minor economy to conserve used air, but when it is translated into terms of fuel economy and air conditioning capacity, it assumes new importance deserving the thoughtful attention of every purchasing agent. Turn to page 109.

This month's Guest Editorial (page 87) is by a man who has consistently been among the leaders of con-

structive thought and practice in the purchasing field. Harking back to our pre-postwar analysis of purchasing responsibilities, and to the basic creed of purchasing, "Wy" Randall calls for a re-examination of the job we are doing in the purchasing departments of industry.

Fitting companion piece to this editorial is the article by Ford's Vice President of Purchasing. A. J. Browning outlines the qualifications for the type of purchasing that is needed in building a sound industrial policy. His message was enthusiastically received by a thousand listeners at the annual Salesmen's Dinner Meeting of the New York Association. You will find in on page 98.



Public Utility Buyers held their annual Midwinter Conference recently in Chicago, featuring a frank discussion of pricing policies with qualified representatives of their major suppliers, and developing a wealth of practical information in an open forum in which purchas-

ing problems were raised and experiences exchanged on a broad scale. The report of that conference appears on page 120, followed by a presentation of several of the leading conference papers. There's information and food for thought in this report for purchasers in any line.

Of especial interest is R. H. Hargrove's address on the purchasing function from the Management Viewpoint. Well qualified to speak for the top executives of industry, and keenly aware of the importance of a good purchasing department, he offers both encouragement and a challenge to the purchasing man. (Page 129).

Other articles of timely interest in this issue include Leo T. Parker's review of recent legal decisions affecting purchases, a simple and effective system of inventory control, and the monthly summary of delivery schedules.

Are you making full use of these monthly departmental features compiled especially to keep you informed on recent industrial developments? A selected list of new Trade Bulletins and Catalogs that are yours for the asking (page 14) and the illustrated summary of New Products & Ideas now available for the industrial buyer (page 146) will help you to keep up-to-date on these matters.

Are You Using this Helpful Steel Guide?



Complete Stock List and Buying Data for Reference when You Call . . .

Complete information on Ryerson Steel—detailed listing of more than 10,000 kinds, shapes and sizes—ready for your steel buying convenience in the new Ryerson Stock List and Data Book. Also included are pages of time-saving informative data on Average Physical Properties, AISI and SAE Standard Steel Compositions and a wealth of other facts and figures. The book is cataloged to simplify the work of purchasing men, metallurgists, engineers—everyone who specifies, buys or works with steel.

All sizes listed are not always in stock, because of the great demand, but Ryerson continues to carry the country's largest stocks. With the Ryerson Stock List to guide you, one call, one order, one shipment, will often cover a varied group of steel needs.

Copies of the current 1947 edition have been widely distributed, but if you do not have one, contact the Ryerson plant nearest you. And be sure to check Ryerson for all steel requirements. If the exact steel you need is not in stock our experienced staff will be glad to suggest a practical alternate.

Joseph T. Ryerson & Son, Inc. Steel-Service Plants at: New York, Boston, Philadelphia, Detroit, Cincinnati, Cleveland, Pittsburgh, Buffalo, Chicago, Milwaukee, St. Louis, Los Angeles.

RYERSON STEEL

The Test of Today's Buyer

By Wyman S. Randall

JUST about two years ago, purchasing men were asked to give serious thought to the responsibilities of their departments in relation to reconversion and postwar conditions of doing business. A nationwide study was undertaken, and a set of recommendations resulted. In these conclusions, particular emphasis was placed on the functional evaluation of purchasing, with several specific points in mind.

It is obvious that any recommendation, however sound and well considered, is valuable only to the extent that it is put into practice. That study was a look into the future, but now vesterday's "tomorrow" become today, and the questions are squarely upon us. At this writing, the process of reconversion has been completed and we have passed through the initial stages of the postwar period. The change has been many months in getting under way, but industry is beginning to get into its postwar stride. In the meantime, what about those recommendations?

Perhaps a re-examination might prove to be stimulating and beneficial to all of us who are concerned with the management of purchases.

One of the first considerations in the re-establishment of a purchasing department for peace-time operations was the necessity of a complete analysis of each employee's activities in the department. The primary W. S. ("Wy") Randall called on the Rust Craft Publishers, Boston, in 1927 as a representative of the Liberty Mutual Insurance Company, to make a routine inspection of the premises. His report, however, was not a routine affair; from his background of experience in production and purchasing at the Forbes Lithograph Company, he made some common sense suggestions for improvement which so impressed the management that he was invited to join the organization and establish a centralized purchasing department. He has headed that department ever since. During this period the company has grown from a relatively small operation with a hundred and fifty employees and occupying a single floor, to one of the leading units in the greeting card industry, a Division of United Printers and Publishers, Inc., occupying seven floors and employing upwards of a thousand workers.

Early in his buying career, he joined the New England Purchasing Agents Association and took an active part in its work. In due course, he served that Association in the offices of Treasurer, President, and National Director. In national purchasing circles, he is widely known as a member and worker on the N.A.P.A. Educational Committee. He brings to this project the

practical experience of his work as instructor of the purchasing classes at his Alma Mater-Boston University, School of Business Administration, and at the School of Business, Northeastern University. In 1945, the National Association of Purchasing Agents instituted a study of "The Purchasing Department's Reconversion and Postwar Responsibilities" and Randall shared the top honors in that nationwide contest. The present editorial is based upon that theme, from the viewpoint of present responsibilities that were then seen as a forecast of probable developments.



PRINCIPLES AND STANDARDS OF PURCHASING PRACTICE

advocated by the National Association of Purchasing Agents

Loyalty to his company Justice to those with whom he deals Faith in his profession

From these are derived the N.A.P.A. standards of purchasing practice

- 1. To consider, first, the interests of his company in all transactions and to carry out and believe in its established policies.
- 2. To be receptive to competent counsel from his colleagues and to be guided by such counsel without impairing the dignity and responsibility of his office.
- 3. To buy without prejudice, seeking to obtain the maximum ultimate value for each dollar of expenditure.
- 4. To strive consistently for knowledge of materials and processes of manufacture, and to establish practical methods for the conduct of his office.
- 5. To subscribe to and work for honesty and truth in buying and selling, and to denounce all forms and manifestations of commercial bribery.
- 6. To accord a prompt and courteous reception, so far as conditions will permit, to all who call on a legitimate business mission.
- 7. To respect his obligations and to require that obligations to him and to his concern be respected, consistent with good business practice.
- 8. To avoid sharp practice.
- 9. To counsel and assist fellow Purchasing Agents in the performance of their duties, whenever occasion permits,
- 10. To cooperate with all organizations and individuals engaged in activities designed to enhance the development and standing of purchasing.

purpose of this move was to eliminate some of the extra work entailed by reason of wartime regulations that have since been removed. In so doing, it would be possible to reorganize for greater speed, efficiency, and economy, in the new competitive conditions of free enterprise. Has your department been revamped to conform with these

changes?

The next suggested action was the consolidation of gains made by the purchasing department in the field of material management. Through the experience of wartime procurement, a new and broader concept of purchasing had been manifested. Quite generally throughout industry, the purchasing department attained a new and more effective status in respect to the overall policies and procedures of company operation. By the very nature of its control and handling of purchased materials, the purchasing department established the advantage of a comprehensive materials department under the jurisdiction of the purchasing officer. Has your department followed this pattern?

Factors bearing on the selection of supply sources received a lot of attention in these recommendations. For many purchasing departments, changes in their company's product brought up problems of new materials to be procured in the return to peace-time manufacture. Such circumstances meant finding and using new sources of supply. This requirement applied even to the buying divisions of other companies that were less seriously affected by the impact of war production.

In almost all cases, during the war period, many secondary sources of supply were added to the purchasing department's prewar list of long standing, well established, and dependable suppliers. Expansion of material needs beyond the capacity of the "first line" supplier to produce, brought about these additions. But what disposition was to be made of this problem upon the return to

more normal conditions?

It was considered advisable to

weigh the factors of advantage and disadvantage in respect to each supplier, objectively and without personal prejudice. The suggested analysis was to cover conditions as:

1. Wartime record of service. with especial emphasis on fulfillment of contractual obligations.

2. Merit of product and perform-

3. Degree of consistency and fairness on price policies.

4. Progressive management policies and leadership in new product developments.

5. Labor-management policies.

If you have wisely determined your selections, based on these factors, then you have built a sound foundation for widely diversified purchases to meet increasingly competitive conditions. But if, on the contrary, you have not given this situation the careful consideration it deserves and demands, then an immediate re-examination is in order.

One other responsibility was suggested. This one was broader in its implications for all purchasing managers, than the others so far discussed. Its particular emphasis was on the individual's concept of the purchasing job-today and tomorrow. Right here, in the answer to this problem, lies the key to the effectiveness and to the whole future of the purchasing function.

Expressed in another way-the policies and practices that are always particularly beneficial to each purchasing agent, are reflected in like manner on his principal, the company he serves. Before the plow, however, comes the horse. The purchasing officer himself, must know what are the best and most widely accepted principles and practices of purchasing, before he can begin to cast this reflection.

For this accomplishment, the code of practice and of ethics so well expressed by the National Association of Purchasing Agents

provides the guidance.

To all who are engaged in purchasing, but who have not yet identified themselves with the Association, I commend membership in the local affiliated group. Through it, you will benefit from the combined experience of its more than 10,000 members, in establishing the policies of your purchasing department. To all present Association members, I recommend a re-examination of the "Principles and Standards of Purchasing Practice" as endorsed by the N. A. P. A.

You will profit by it. I did.

DEPARTMENT OF COMMERCE OFFERS FACTS TO GO ON

Division Chiefs outline specific services that the Commerce Department is making available to help industrial purchasing agents and managers

• By A. N. Wecksler

A new relationship is gradually developing between industry and Government—though the pattern is obscured, one the one hand, by business resistance to the lingering restrictions of the war economy, and on the other, by congressional demands for drastic budget slashes.

Functions of Government are being shifted from temporary agencies to the permanent departments, and the personnel is being sifted down to more normal levels.

The outward evidence of business disposition toward Government is an impatient effort to shake off as many restraints as possible—and quickly. This intolerance is primarily aimed at the regulations that substituted controls for the normal balances of competition.

Members of Congress feel a certain futility in trying to pare down intelligently an over-wieldy administration of Government. The feeling persists among legislators that there is a good deal of water among the mushroomed departments of Government.

While it is generally recognized that such water should be squeezed out to leave the vital functions intact, at the same time it appears impossible to do an incisive job of pruning back Government personnel and functions with reason and care, because it is the very nature of a bureaucracy to resist Congressional efforts at economy. Bureaus and departments seek to hide every evidence of waste, for fear that once discovered, Congress will go too far

To counteract this trend, Congress lays on a heavy hand and makes arbitrary cuts in appropriations, on the premise that if a heavy slice is taken out of a department's appropriation, the pruning job will be forced on the department.

This process of seesawing tends to obscure the real needs of a department of government. A member of Congress calling for economy recently suggested that the Department of Commerce be cut back to a prewar level of personnel and appropriation, totally disregarding the fact that the bulk of the expanded personnel and budget concerns itself with the Civil Aeronautics Administration and aviation services performed in the Weather Bureau and the Coast and Geodetic Survey.

Such a suggestion, if carried out, would leave the Department of Commerce without any functions in commerce.

Recent history of the Commerce Department reveals some interesting parallels between the attitude of Congress toward the Department and the general attitudes which have been taken by the public toward business.

Following the industrial break in 1929, the Department of Commerce lost heavily in prestige, and the continued harping by its officials that prosperity was on its way back quickly became threadbare as the economic pinch tightened.

One of the low points of the Department's history was mirrored in the remark attributed to the late President Roosevelt, who was reported to have told the then Secretary of Commerce Harry Hopkins:

tary of Commerce Harry Hopkins:
"You can run the Department
with your left hand while you shave
with your right."

The redoubtable Jesse Jones, who succeeded Hopkins as Secretary, took on the Department as one of many duties, and he admittedly had higher fight to fee.

bigger fish to fry.

Then came Henry Wallace, whose abilities at controversy launched the Department of Commerce into a bitter quarrel with the industrial interests which the Department sought to serve. Wallace was mainly interested in creating a better world, rather than better business. His ideologies tinctured better judgment, and the report issued at his instance, purporting to show that the automotive industries



W. A. HARRIMAN Secretary of Commerce

Under Mr. Harriman's leadership, the Commerce Department is resuming its role as the businessman's direct point of contact with government, a reliable source of information and assistance.

could raise wages without increasing prices, created a sharp break between the Department of Commerce and business.

Into this controversial picture stepped W. A. Harriman, whose business background is impressive and whose Government experience is extensive. Secretary Harriman's main urge is to make our economic system work—and work well. He feels an urgency in this mission, after close observation of the Russian state where he served as U. S. Ambassador, and after his mission to Great Britain, where he saw the private enterprise system tottering.

Harriman feels that a new relationship is developing between industry and Government. Industry is more avid in seeking statistics and economic information. This, he sees as a healthy sign. He believes that a well-informed business community can make proper decisions

munity can make proper decisions Both he and his Under-Secretary, William Chapman Foster, are parti-

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COMMERCE DEPARTMENT



WILLIAM C. FOSTER Under Secretary of Commerce

Mr. Foster entered upon his duties in this post in December, 1946. In civilian life, he has been a successful executive with the Pressed & Welded Steel Products Company and Wagner Machinery Corporation of Long Island City, and has held several important assignments on the Committee for Economic Development. He was awarded a medal and commendation by the War Department for Exceptional Civilian Service in World War II.

cularly interested in getting the story of the Department of Commerce across to purchasing agents, and spent some time with this writer explaining their policies and plans in developing better service to industry.

Harriman and Foster conceive the Department of Commerce as a full-time job. They see the Department as a vital cog in warding off the ills of depression.

Just as industry is developing a new demand for economic information, they emphasize that Government has assumed a new responsibility toward business. Secretary Harriman pointed out that the Full Employment Act has fixed on Government the responsibility of preventing collapse in business.

"The unexpected is always dangerous," Harriman said. He sees the role of the Department as a collector of information and a dispenser of such information and services as make businessmen fully aware of the economic state of the nation. When conditions are understood, they can be met and the dangers minimized.

Harriman sees Government as a service agency and a balance wheel. Government expenditures in public works can be deferred in times of great business activity, and concentrated during periods of lag. When the business community, the public and Congress are fully aware of the need for Government intervention of this type, a recessive cycle can be contained. Harriman pointed out that President Coolidge made an effort toward such corrective action when the first inkling of business instability seeped through. At that time no steps were taken, because to all outward appearance the boom showed no abatement.

Secretary Harriman wants a continued scanning of the economic picture to discover the indices of economic ills. Once discovered, these would be publicized, and preparation made for cure before the disease develops.

All this, he feels, can be done within the framework of individual business freedom—in fact through the prevention of crises, he feels that "crisis" Government actions can be eliminated.

STATISTICS ON BUSINESS ACTIVITY

• By Horace B. McCoy

Director, Office of Domestic Commerce, U. S. Department of Commerce

THE Office of Domestic Commerce serves individual manufacturers, wholesalers, retailers, and operators of service establishments as well as industries, business and professional groups, research and financial organizations.

Most of the economic and statistical studies, articles and reports of the ODC are prepared at the request of, and in cooperation with, business. The basic data are gathered through the Bureau of the Census, as well as from all other governmental agencies and private sources. The information is assembled, organized, analysed and distributed by the ODC to cover the needs of business and industry

as facts to guide them in procurement, production and sales.

The ODC is divided into six operating divisions: Industry, Marketing, Construction, Transportation, Area Development, and Trade Association.

The Industry Division provides manufacturers and producers of commodities with basic information on current trends in production and consumption of materials and manufactured products. The information is furnished in answer to individual requests or through publication of special industry reports, articles in trade magazines, or in regular publications of the Department of Commerce. All field offices are supplied

with this material to meet the needs of businessmen in their own terri-

A special inquiry requiring the assembly and development of statistical and economic data of a specific nature which falls outside the ordinary activities of the ODC can be prepared through financial arrangement with the Office. The cost of such service is determined by the nature of the information required and the form in which it is to be produced.

Ten industry reports, listed herewith, are regularly published by the Industry Division, and which contain complete current statistical information on a vertical plane—from

OFFERS FACTS TO GO



prospective supplies, procurement and production, to ultimate consumption. In addition, commodity surveys are regularly made which give concise statistical information on important raw materials and

finished products.

A weekly index to all material printed, processed or mimeographed by the Department of Commerce can be obtained for the subscription price of one dollar per year. This index is entitled "Business Service Check list," and is alphabetically arranged with a concise statement with respect to each item listed. The businessman merely checks off the material he wants, returns it to the Department with his money order or check. On some material there is no charge.

The Marketing Division provides economic and statistical information marketing and distribution methods, the analysis of distribution methods, the analysis of distribution costs and other material of special use to the distributor, whole-

saler and retailer.

Principal activities of this Division include the preparation and distribution of market data handbooks which appraise market potentials by geographic areas. One such handbook which may be of special interest to readers of Purchasing is: "Regional Shifts in Production, Population and Markets." There is no charge for this publication. The Division also conducts industrywide studies and makes them available to the trade-studies such as "Distribution Cost Analysis" and "Retail Operating Policies."

The Construction Division assembles and distributes information on the volume of construction activity and on the availability and use of all types of building materials and supplies. It also conducts economic studies to meet the needs of the construction and building materials industries. Developments in the fields of new materials and new construction methods are also the concern of this division, which publishes and distributes special reports bearing directly on markets for construction and materials. These reports serve the industry as a basis for decisions on such important matters as inventory controls.

The Transportation Division serves business on a wide variety of transportation problems. Industrial concerns contemplating establishing new plants or the expansion of existing facilities are furnished essential information concerning transportation costs. The Division helps many groups and individuals explore the opportunities for new enterprises in the fields of airways, highways, and waterways, and assists in locating sources of information on commodities to be transported. Studies are conducted as to the general effects of freight rates upon industry. Plans are under way to assemble and publish point-topoint rate and traffic data for the use of business generally.

The Area Development Division offers assistance to state and local organizations engaged in industrial development programs based on local resources and enterprise. The Division acts as a clearing house for development agencies and groups in the assembly of basic information on resources, industries, and markets. It also is ready to advise organizations on methods for surveying and appraising resources, selecting industries appropriate to these resources, and in determining market opportunities for the products of industries under consideration. The Division publishes special studies such as "Metropolitan District Basic Data Sheets" and



HORACE B. McCOY

"Basic Industrial Location Factors." The Trade Association Division is the sole center of information in the Federal Government on all types of cooperative nonprofit business organizations, of which there are approximately 16,000. The 320-page handbook and directory published by the Division in 1942 and now being revised, "Trade and Professional Associations of the United States," is probably the most complete in existence on national organizations. Upon request, the Division assists individual associations by analyzing their program of activities and suggesting plans whereby services to their membership may be improved.

INDUSTRY REPORTS

regularly published by the Office of Domestic Commerce, U. S. Department of Commerce

Canned Fruits and Vegetables (Production and Wholesale Distribution) Chemicals and Allied Products Coffee, Tea and Spices Construction and Construction Materials **Drugs and Pharmaceuticals** Fats and Oils Leather Pulp and Paper Sugar, Molasses and Confectionery Transportation

Quarterly

Monthly Quarterly Monthly Quarterly Bi-Monthly Monthly Monthly Quarterly Bi-Monthly



COMMERCE DEPARTMENT

ECONOMIC FACTORS ANALYZED

• By Amos E. Taylor

Director, Office of Business Economics, U. S. Department of Commerce



AMOS E. TAYLOR

W HEN the Commerce Department's analysis "Markets after the War" was reprinted by The Committee for Economic Development, the introduction added by Marion B. Folsom pointed out that report correctly whereas the stressed the importance of various economic influences arising from the war, it still remained for business analysts to appraise the effects of these influences. Such appraisals are now being conducted widely. The group of Commerce Department economists and statisticians who prepared the material for "Markets after the War" provide groundwork information to facilitate such private analysis, and are themselves making appraisals to help business chart its course.

Are inventories too high? The Office of Business Economics gets reports from hundreds of firms, and analyzes many complex factors, to assess the situation accurately. Even so, the question cannot be answered simply and categorically. But businessmen agree that it's an important matter for continued inquiry, and that good practice calls for keeping posted on inventory movements—

in general as well as for a particular line of business.

Authoritative inventory data appear regularly in the "Monthly Business Statistics" section of the Survey of Current Business—the monthly publication of the Office of Business Economics in the Commerce Department-which in a month or two will carry a summary article analyzing recent developments. The "Postwar Role of Business Inventories" was explored as far back as last year's October issue. That article precipitated considerable discussion, and the regular monthly inventory reports have since received close attention from business managers and analysts. The inventory figures are released in preliminary form to the press, and in final form by way of a monthly, the "Industry Survey", which also covers shipments, incoming business, and unfilled orders.

How much is business likely to spend for new plant and equipment? A joint inquiry conducted four times each year by the Office of Business Economics and the Securities and Exchange Commission provides a basis for comparing actual with planned expenditures by private business. The most recent report of findings, in a Survey article reviewing the 1946 results, pointed out that in general the plant and equipment expenditures estimated six months in advance corresponded closely to the actual outlays. The discrepancy since early 1946 has ranged between 3 and 5%. The reporting companies account for close to 50% of plant and equipment expenditures in manufacturing, over 50% in railroads and other utilities, and 25% of commercial and miscellaneous companies.

Is the economy healthy? The February number of the Survey of Current Business is the Annual Review Issue which contains a general estimate of business conditions during 1946—with year-end totals for

all important measures of economic activity-and provides a basis for individual estimates of the forward movement of the economy. The tools of analysis include the national income and gross national product series, statistics on the business population and business mortality. retail sales, the United States balance of international payments, and the foreign transactions of the U.S. Government. Periodically, the current situation in these and other fields is reported in considerable detail for the benefit of specialists in particular areas. However, each month the position of the economy as a whole, and major trends in all spheres affecting business conditions, are discussed in "The Business Situation" section of the SurSi

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The Economic Report of the President is the most recent broadgauge appraisal of the national economy. The discussion there is keyed to the national income, gross national product, and related series of the Office of Business Economics-for the reason that these statistics are by far the best available barometer of business. The amount of disposable income available for consumer spending, the actual level of such expenditures, corporation profits, outlays for residential construction—these and a host of other significant business indicators are part of the over-all product series. And, as "Markets after the War" demonstrated, their utility is by no means confined to their role as the pulse of the national economy. By establishing relationships between such national measures, on the one hand, and the record of a particular business or industry, on the other, a method of assessing business prospects can be worked out. The work itself, of course-beyond advice on methods—is left by the Of-fice of Business Economics to the analysts employed by business.

How is foreign trade financed?

OFFERS FACTS TO GO ON



Since long before the war the major benchmark for international traders has been the balance of international payments data issued by the Office of Business Economics. Although the annual series was suspended for security reasons during the war, it will shortly be resumed, with a single volume covering the period 1940-1945. Meanwhile, to provide information more frequently, current data are being made available quarterly. Thus it is now possible for the trader frequently to ascertain the position, on balance, of the

United States in foreign trade. Moreover, detailed information is furnished on the manner in which the goods and services purchased by foreign countries are financed; this provides a major clue to their current ability to elevate their economies to positions as important suppliers to the United States.

One result of the war in this sphere was a vast increase in the U. S. Government's direct participation. Accounting records of Government commitments and undertakings, through various agencies,

are compiled by the Clearing Office for Foreign Transactions, a division of the Office of Business Economics. The implications of such transactions are highlighted in *Survey* articles like the recent one which pointed out that annual carrying charges for Government foreign credits are expected to reach a total of \$366 million dollars in 1952. That amount is over and above the net volume of payments normally due the United States as a result of dealings for private business account.

CENSUS BUREAU STATISTICS AS AN AID TO PURCHASING

THE Bureau of the Census gathers a wealth of economic information, including data on the distribution and productivity of industry, mines, and agriculture, on the condition of business or distribution, as well as data on the population and its buying power, the labor force, imports and exports and other relevant subjects. Some of the data gathered by the Census Bureau in fields of direct interest to the purchasing agent or in related fields is described briefly below.

Facts for Industry

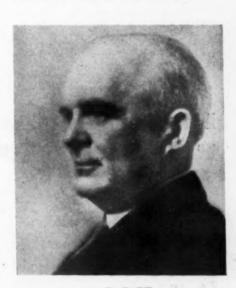
The Census Bureau conducts a program of current manufactures statistics, which give a picture of short-run changes in industrial production, shipments or sales, and inventory. These statistics are reported with some interpretive text in the "Facts for Industry" releases, which show on a monthly, quarterly or annual basis the activity in industries and groups of industries. In brief, the reports measure the volume of goods available for distribution, and reveal short-term fluctuations in rate of manufacturing activity. Covered in the reports

are processed foods; textile mill products; apparel and leather products; lumber, furniture, pulp, paper and printing; chemicals, fats and oils, plastics, paints, and nonmetallic products; primary ferrous and non-ferrous metals, and intermediate metal products; machinery and equipment, transportation equipment, and miscellaneous manufactured products.

The Census of Manufactures

The Census of Manufactures provides comprehensive information on the number, size, type, and geographic location of all manufacturing establishments. Data are published on inventories and plant and equipment accounts: the cost of materials and fuels; the quantity and value of products shipped, by detailed classes of products; and the distribution of manufacturers' sales by principal distribution channels. The Census of Manufactures constitutes an industrial "benchmark" used as the starting point for all types of industrial indexes and measurements of the production of goods for the market.

The Census of Manufactures is authorized by law to be taken every two years. It was suspended during • By J. C. Capt
Director, U. S. Bureau of the Census



J. C. CAPT

the war, so that the most recent data are for 1939, having been collected in 1940. It is expected that a Census will be made as scheduled in 1948 to cover 1947, if funds are provided by the Congress.

Foreign Trade

Monthly and annual statistics are compiled by the Bureau providing information on the quantity, value and shipping weight of each



COMMERCE DEPARTMENT

commodity entering or leaving the United States. Data are given in considerable detail including the country of origin or destination; the domestic port of entry or departure; and the foreign port to which or from which the commodities were shipped.

These foreign trade statistics of the Bureau constitute a valuable reference for the purchasing agent interested in exploring foreign sources of supply, or in gauging the effects of foreign supply on the domestic price structure.

Retail, Wholesale and Service Trades

The Bureau publishes a series of monthly and quarterly reports covering business activities in the retail, wholesale and service trade fields. Some reports measure the trends in the volume of sales or receipts, by kinds of business; other reports measure the flow of certain commodities through the distribution system.

In addition, monthly reports are issued on wholesalers' sales, inventories and credits, and on public merchandise warehousing, providing national and city statistics on trends in warehouse occupancy.

Agriculture

Detailed information on the number, characteristics, and productivity of farms is available for every county and State and for the United States in connection with the recently-completed 1945 Census of Agriculture. As an index to trends in the production of various agricultural commodities, particularly those used extensively in industrial production, the Census of Agriculture may prove useful reference material for the purchasing agent who is concerned with establishing sources of supply in agriculture. If he has a choice of commodities, the data as to production, acreage in production, and trends in production of each commodity may be found in the Census pages.

Population and Labor Force

Data on population are of more concern to the merchandiser than to the purchasing agent; nevertheless the latter may read population reports with interest and perhaps with profit. Figures on population, family growth and the labor force are basic to an understanding of any reports on economic activity, and characteristics of the population, such as income and buying habits, may be of value.

It is interesting to note the varied uses to which the business community puts population statistics. Population patterns are a foundation for the work of the marketing specialists, and are important to the industrialist seeking new outlets, new products, and new plant locations. The patterns of internal migration, the ebb and flow of people from locality to locality, as measured in several Census Bureau surveys, is of vast interest to business and industry, and has been the subject of considerable study by such groups as retail credit men, chain stores, etc.

A compact index to economic activity, the Bureau's Monthly Report on the Labor Force measures the size of the labor force and the prevalence of employment and unemployment each month.

IMPORTS CAN HELP TO SOLVE PURCHASING PROBLEMS

· By Thomas C. Blaisdell, Jr.

Director, Office of International Trade, U. S. Department of Commerce

THOMAS C. BLAISDELL, JR.

URING the war and immediate postwar years "expediting" has been a major function of the purchasing representatives and purchasing departments of many large organizations. Problems of supply were acute, and in various segments of U. S. industry, they still remain difficult. When specified raw or finished materials could not be obtained, buyers used their ingenuity to find substitutes to meet immediate requirements of production. Or, when established sources could not produce, agents scoured the country to find other means to fill the gaps in the supply line.

Many alert buyers have turned to the Office of International Trade, Department of Commerce, to make use of its world-wide information to help "expedite" their pressing requirements at home by utilizing its facilities to establish reliable sources of supply in many parts of the world. Buyers with a grasp of the potentials of steady supplies from international sources are taking advantage of the tools which OIT has available to meet their needs.

Examples are numerous of OIT assistance in filling the breach with a raw or processed material from abroad. For instance, recently a

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PUBLICATION AIDS FOR PURCHASING AGENTS Available From The OFFICE OF INTERNATIONAL TRADE, DEPARTMENT OF COMMERCE

1. FOREIGN COMMERCE WEEKLY. Annual subscription: Domestic, \$6; foreign, \$8.75; single copy, 15¢. Available from Department of Commerce Field Offices or the Superintendent of Documents, Washington 25, D. C.

A weekly periodical containing up-to-the-minute news on commodities, services, and foreign countries; export and import opportunities; lists of foreign business visitors to this country; Latin American exchange rate tables; information on foreign trade-mark applications; and United States export controls and related announcements. Each issue also features special articles on topics of value to world traders.

2. INTERNATIONAL REFERENCE SERVICE. A series of reports, issued as completed. Printed in loose-leaf form, punched for 3-ring binder. Annual subscription, beginning with Volume II; \$2. Copies of single reports, 5¢ each. Available from Department of Commerce Field Offices or the Superintendent of Documents, Washington 25, D. C.

Provides basic economic reports gathered throughout the world by Foreign Service Officers of the U. S. Government. Covers such subjects as foreign industrial development, preparing shipments to foreign countries, methods of doing business, costs of doing business and living in foreign countries, marketing areas, economic situation in foreign countries and foreign commercial laws. Includes the Foreign Commerce Yearbook country series; i. e., separate reports on Columbia, Portugal, Canada, Chile, Peru, Cuba, Nicaragua, and others.

3. INDUSTRIAL REFERENCE SERVICE. A series of reports issued as completed. Printed in loose-leaf form, punched for standard 3-ring binder. Published in parts, available by subscription from Department of Commerce Field Offices or the Superintendent of Documents, Washington 25, D. C., as follows:

Part 1, Transportation and Public Utilities, \$1.50 a year; Part 2, Chemicals, Drugs and Pharmaceuticals, \$2 per year; Part 3, Motion Pictures and Equipment, \$1.50 a year; Part 4, Electrical Equipment, \$1.50 a year; Part 5, Foodstuffs, Fats and Oils, \$1.50 a year; Part 6, Forest Products \$1.50 a year; Part 7, Leather and Its Products, \$1.50 a year; Part 8, General Products, \$1.50 a year; Part 10, Machinery and Motive Products, \$1.50 a year; Part 11, Metals and Minerals, \$1.50 a year. Copies of single reports, any part, 5¢ each.

The series includes foreign market surveys on major industries and commodities, transportation facilities, by countries and other basic studies to aid in making intelligent market analyses.

4. FOREIGN TRADE — BASIC INFORMATION SOURCES. July, 1946, 46 pp. Available free from the Office of International Trade, Commerce Building, Washington 25, D. C., and Department of Commerce Field Offices. A comprehensive reading list of Government and non-governmental publications relating to the general subject of foreign trade. Lists directories of foreign traders and names of magazines and journals having a wide foreign circulation.

5. EXPORT AND IMPORT PRACTICE. Trade Promotion Series No. 175, 1938. 310 pp., illus. 40¢. Available from Department of Commerce Field Offices or the Superintendent of Documents, Washington 25, D. C.

A manual for the new or established exporter or importer, giving a step-by-step description of how foreign trede is successfully conducted. Freely illustrated with specimen forms and documents required in export and import shipments. Contains a glossary of commercial abbreviations, collection and payments terms, and a convenient index.

6. FOREIGN COMMERCE AND NAVIGATION OF THE UNITED STATES FOR THE CALENDAR YEAR 1942, 971 pp., 1945, \$3.50. Available from the Superintendent of Documents, Washington 25, D. C. A detailed statistical record of the foreign commerce of the United States; published annually. Shows articles exported and imported by countries and by customs districts, and many other tables. Earlier editions are on file at most large libraries and Department of Commerce Field Offices.

The following tables, prepared for preliminary distribution, are available from the Bureau of the Census, United States Department of Commerce, Washington 25, D. C., at the prices noted. The complete bound volume for the calendar year 1943 will be issued at a later date.

Table No. 1—United States Imports for the Consumption and General Imports of Merchandise by Commodity by Country of Origin—1943. February 1946. 283 pp. 40€.

Table No. 4—United States Total Exports and Exports Under

Table No. 4—United States Total Exports and Exports Under the Lend-Lease Program of Domestic Merchandise by Commodity by Country of Destination—1943. November 1945. 485 pp., 50€.

7. CHANNELS FOR TRADING ABROAD. Economic Series No. 52, 1946, 26 pp., 10¢. Available from Department of Commerce Field Offices or the Superintendent of Documents, Washington 25, D. C.

Designed particularly for businessmen who are planning to

Designed particularly for businessmen who are planning to enter the fields of importing or exporting for the first time or who plan to expand their prewar trade abroad. Describes the principal channels through which successful foreign traders export or import their goods. Suggests methods of selecting representatives and sources of information about them. Also outlines services in this field which are available from the Department of Commerce and its Field Offices throughout the United States.

8. TRADE LISTS. Listings of foreign firms and individuals (agents, distributors or dealers, exporters, growers, importers, manufacturers, producers, refiners, etc., classified by commodity and service organizations). Available from Special Services and Intelligence Branch, Office of International Trade, United States Department of Commerce, Washington 25, D. C. A list of the classifications and countries for which trade lists are available may be obtained on request from the Branch.

are available may be obtained on request from the Branch.

Trade lists include data on relative size of firm, method of operation, lines handled, number of salesmen, and territory covered. Among lists is one entitled Advertising Media, available for practically all Latin American countries; compilation of these lists will continue until the entire world is covered.



COMMERCE DEPARTMENT

purchasing agent representing a furniture manufacturer brought this problem to OIT. His company could not get a certain type of lumber it normally used for its product. The lumber had to meet exact specifications. A check was made with the Commodities Branch and an effective overseas source of supply of a satisfactory substitute at a fair

price was located.

Recently a purchasing representative bought a quantity of merchandise in Puerto Rico. His sales department raised the point about the proper marking of the goods to comply with U. S. Government regulations for sales of consumer items. Since Puerto Rico is not part of continental U.S., the organization was confused over its status - not realizing that Puerto Rico is a territorial possession of this country. OIT quickly informed the agent that all that had to be done was to have the goods marked as being packed by the firm doing the job, since the company did not manufacture the product in the U. S. There were no duties, no exchange difficulties, no licenses, only an import quota, which was taken care of easily. Yet the information needed for the final analysis cut across four different branches of government. One telephone call to OIT settled all difficulties.

Leather Unit Helped

Recently, because of a shortage of tanning extract, the Leather Unit helped the entire trade by pointing out that there was now being developed a new source of supply in Brazil — a product called "wattle extract." Brazil was not an exporter in the past — Africa and Argentina had largely supplied the U.S. with

tanning extract imports.

In recent months U. S. manufacturers of cordage, clothing and new fabrics have been anxious to contact international producers of the raw materials they needed. The Textile Division has developed new import sources for hard and soft fibers. An upholstery firm was aided in obtaining Spanish moss to be used for stuffing furniture, which initiated the exporting of this material from a Central American country. The domestic supply had become somewhat uncertain because of high costs and a new economical source of supply was found abroad.

Seldom does a week pass without some business bringing its particular long-range problems to OIT. World-wide shortages of chemicals have spurred manufacturers to investigate every possible resource. The Chemical Division was recently called upon to provide import information on several plastic raw materials from all known overseas producing countries in order to expand domestic supply, because of the current heavy demand of the building industry and other important manufacturing processes for finished

New Sources of Supply

Currently a world-wide survey has been undertaken which will doubtless reveal numerous new sources of handicrafts and novelties. This information is designed to appear in time to supply the Christmas trade. Revival of industry in enemyoccupied countries too, may provide additional sources of textiles, chinaware, glass and other useful household products for domestic markets.

These are a few examples of the day-to-day help OIT provides purchasing agents, as well as supplying supporting marketing information concerning comparative price structure, quality of materials, general economic conditions, exchange, new products, factories or services in the

markets of the world.

Foreign Service

A steady flow of on-the-spot information on every country and commodity pours into Washington from the Foreign Service. Specialists analyze the material and it is distributed to world traders. From the standpoint of the purchasing agent in dealing with OIT he should know something about its internal organizational setup and the services the major branches furnish.

The Commodities Branch provides information on foreign production, consumption, distribution and the broad field of international trade in commodities or of industries. It aids in the development of markets for United States products and helps to locate foreign sources of supply for material required in this country.

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Information on every trading area in the world is furnished by the Areas Branch. This includes both basic and current data, country by country, on natural as well as industrial resources, markets, trade controls, finance, exchange, tariff rates and regulations, commercial laws and practices, taxation and local legislation affecting trade. Statistical specialists gather and compile the foreign-trade statistics of each country. These statistics include import figures of the United States, and of other countries invaluable aids in determining the size and character of foreign markets and sources of supply.

Information on the human element trading abroad is the province of the Special Services and Intelligence Branch. Services provided include *Trade Lists* classifying the channels of distribution, usual sources of foreign supply, and principal industries, processors and service organizations. These listings are classified under 100 major commodity groups and are available for every trading area in the world. A World Trade Directory is also maintained. This Directory provides detailed information on 1,-000,000 foreign firms and individuals engaged in world trade. Each report cites a firm's method of operation, reputation, size, number of employees, capital, annual turnover, ownership or management, representatives or principals in the U. S. or other countries. This Branch announces foreign business visitors and specific import opportunities through New World Trade Leads in Foreign Commerce Weekly, official departmental publication. It furnishes personalized service to those seeking advice and counsel involving trade. Information on various aspects of international transportation and communications shipping, railway, highway, air, pipe-lines, inland waterways, power, public utilities and electrical characteristics - is gathered and disseminated. Information on trade fairs and exhibits abroad and in the U.S. can be obtained. Here the world trader can obtain current informa-

OFFERS FACTS TO GO ON



tion on facilities, rates, and services that in any way affect the movement and distribution of imports.

The 77 field offices of the Department of Commerce — located for the convenience of businessmen in all parts of the country — serve as advance stations of the Department of Commerce. Each office has an International Trade Division with personnel qualified to advise and counsel on foreign trade matters and also maintains a library which contains numerous publications on international subjects. The services of the field offices have long been used by established importers and

exporters. Full advantage of them should be taken by new world traders. In the separate box accompanying this article is a list of OIT publication aids which purchasing agents who desire to become better informed on international trade will find especially useful.

The purchasing agent who supplements his supplies by buying abroad not only helps himself and his firm, he contributes importantly to balanced world trade. If there ever was a time when U. S. consumer and durable goods were in universal demand, this is it. There are hundreds of millions of people

on the globe and they want and need U. S. goods. Last year we sold them approximately ten billion dollars worth of goods, but in return we only bought about half as much in products produced by other nations. If we are to maintain or increase this great international market - so vital to world economic stability and peace - we must buy more goods from abroad. We must provide dollars in foreign lands for merchandise to be bought from the U.S. Thus the purchase of goods overseas contributes to maximum production and full employment at home.

TECHNICAL SERVICES AVAILABLE TO BUYERS

• By John C. Green

Chief, Office of Technical Services, U. S. Department of Commerce

THE up-to-date purchaser not only knows how to buy economically and efficiently the myriads of items needed by a complex industrial enterprise. He also has to be on his toes to be able to suggest new materials, new methods, new ways of cutting costs and increasing profitability, to every branch of the company he works for.

The Office of Technical Services can be useful to him in this connection in two separate ways: first, with its huge storehouse of American and German wartime technology, and second, with its technical advisory and development services.

OTS is the biggest repository of modern industrial know-how in the world today. Charged by the President of the United States with the responsibility of disseminating to business and industry all the results of wartime science and technology, both American and enemy in origin, OTS by now has over 65,000 reports and documents touching on every conceivable field of industrial production and technical research. The alert buyer will find in this mass of material a gold mine of

ideas for new products, new technological short-cuts, new moneysaving methods.

Particularly for businesses with research departments, OTS material offers the purchasing officer hundred of millions of dollars' worth of bought-and-paid-for research. Your buying catalog for OTS reports is called "The Bibliography of Scientific and Industrial Reports." It is a weekly publication, containing analytical abstracts of a thousand documents each week, and arranged so that you can quickly put your finger on the data of particular interest to your own business.

The Bibliography costs \$10 a year, and can be purchased from the Superintendent of Documents. Every document listed in it is priced for photographically reproduced copies—either photostat or microfilm. Some of the more important items are available and in a cheaper and more legible mimeographed or offset form. Any reader of PURCHASING desiring a sample copy of the Bibliography should write to the Office of



JOHN C. GREEN

Technical Services, Department of Commerce.

The technical advisory and development divisions of OTS have an equally important function for buyers from all areas of industry. Many of you will remember the work done during the war by the Technical Advisory Service of the

(Please turn to page 362)

Management will come
to a fuller recognition
of the importance of its
purchasing agents
when they look beyond
the placing of orders
and undertake the
buying responsibility
as a constructive and
dynamic function of
business

By Albert J. Browning

Vice President and Director of Purchases Ford Motor Company Dearborn, Michigan

Abstract of an address at the Purchasing-Sales dinner meeting of the Purchasing Agents Association of New York, February 26, 1947.



TOMORROW'S PURCHASING AGENT

We at Ford have certain important, basic convictions. One of them is that costs have got to come down so that prices can come down, and we can get back on the road of better standards of living in America. For too long now the idea of rising prices has been accepted as inevitable. Too few have taken the other and more promising fork in the road to better living standardsthe road of lower costs and lower prices for everyone. There has been talk of "holding the price line" and we have had a long and not-toohappy experience with peacetime ceilings-but that is defensive thinking, I'm talking about getting pricés down—not merely hoping they won't go up.

We believe in lower costs and prices at Ford because we are in the mass production business, Our success was built upon selling at low prices in order to increase demand and markets and thus make low costs possible.

In our opinion, this is tremendously important, not only to us but to our national economy and to all the American people. The strength and weight and high standards of living of our nation are owed chiefly to two things—first, the free, open, competitive spirit and opportunities of the American capitalistic system—and, second, mass production techniques, which, as a matter of fact, would never have been discovered and developed if we had not had a free, enterprising, risk-taking capitalistic system.

Mass pricing, leading to mass markets, and making possible mass production, is of the utmost importance in our view, and the Ford Motor Company is committed in its own mind—and by action—to an unceasing drive toward those objectives. Since this clearly puts us on the side of the American people, we feel particularly secure in this policy.

Costs and Prices

Low prices are, of course, impossible without low costs. From time to time some irresponsible economic thinker with rose-colored glasses—or maybe even pink-colored—comes to the conclusion that high unit costs and low unit prices are possible, All you need to do is to cut profits.

We are not so naive as that. Even the small companies of the nation—who make the biggest percentage of profit (partly because they are the most risky)—don't make enough money to do that;

and the largest companies—who make a much smaller percentage of profit but compensate for that with greater stability of earnings—are even further away from being able to use that simple sounding solution.

No—the truth of the matter is that we are going to get costs down by hard work and not by any easy cutting of fat profit melons that don't exist.

Sales Aspect of Buying

What are my specifications for the new purchasing agent? What is his job?

First — Tomorrow's purchasing agent should be sales minded.

What it seems to me we need is more of the point of view which has developed in the field of department store and mail order houses. The buyer does not merely scour the market place looking for products that are being manufactured. He studies consumer demand. He tries to decide what people want or might want and then tries to make an important contribution to the development of new and improved items that will sell. He does not wait for the manufacturer to come to him. On the contrary, he is a salesman of ideas. He is constantly traveling around talking to suppliers and manufacturers. He has imagination. He is dynamic. He is constantly working with suppliers on joint projects to turn out better, more saleable products.

Dynamic Vision

If you will accept "salesmindedness" as the first qualification for the purchasing agent, here's my second specification:

Tomorrow's purchasing agent

should have vision.

I think you will share with me a feeling that there is a tremendous waste in industry arising out of the fact that the genius and abilities of supplying companies are rarely used to the full. We at Ford, for example, have some of the ablest engineers and technicians in the world. We have one of the smartest engineering and design teams to be found any place in our industry or the country as a whole. But all of our suppliers also have experienced technical men-many of them imaginative and superior. In total, they have many more than we have. How often do we use their skills? How often have you and I, as pur-chasing agents, failed to use the management brains, merchandising knowledge and the research and engineering staffs of our suppliers to the fullest extent? How often have we fully enlisted their help or tapped that rich resource?

Look Beyond the Order

My third point would be this:

Tomorrow's purchasing agent must be an organizer with a capac-

ity for leadership.

What we are proposing is that the capacities—the skills—the experience—of supplier organizations be welded into a team operation where maximum advantage is taken of the possibilities for joint action.

Current price is not the only factor. We must look far ahead toward future prices. If by smart buying today we can help develop an enterprising, imaginative supplier with a fine team of his own and great capacity for growth—and if we can give a hand to a company that, over a period of years, will help us to get costs and prices down through



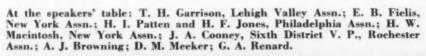
D. M. MEEKER presided at the meeting



G. A. RENARD discussed the business outlook



A. J. BROWNING at the microphone









N.A.P.A. Secretary George Renard; Vice President Garnet T. Dickson, District 5, Toronto; Vice President Charles M. Healey, Jr., District 9, Springfield, Mass.



Harold G. Butterfield, General Chairman of Dinner Committee; W. A. Charity, Rochester Assn.; William J. James, Charter Member of the New York Assn.



H. F. Jones, President of the Philadelphia Assn.; H. W. Macintosh, National Director, New York Assn.; Stuart F. Heinritz, Editor of PURCHASING; J. A. Cooney, Vice President, District 8.



A. J. Browning with New York executives of the Ford Motor Company: Walter T. Roweroft, C. J. Seyffer, and Nelson F. Bowe.



M. J. Birzer, Jr., Canton Assn.; Harold G. Adams, Philadelphia Assn.; and J. H. Leonard, Executive Secretary of the New York Assn.

smart manufacturing—then we can create something bigger than the companies we buy for.

Improved Purchasing Techniques My fourth specification is this:

Tomorrow's purchasing agent must create new techniques of buy-

The tremendous productivity of this country, which has given us the world's highest standard of living for the people of our nation, is due in largest measure to technologyto techniques-especially to the techniques of mass production. First came the idea of standardization. Once this idea was accepted, manufacturing techniques were developed to achieve uniform production of interchangeable parts. Then came the division of labor idea-the notion that a complex job can be broken up into a great many small pieces which many people can be trained to do. The assembly line technique introduced the idea of having the job come to the worker rather than having the worker move around after the job. Add to these the idea of huge, special purpose machines which can turn out millions of items at a low cost per item-but which can be afforded only if there is a market for the item in millions.

These are the things that I mean by techniques and technology. The productivity of the individual American worker has increased over the years—but it has been helped in very great measure by the constant introduction of new techniques.

What was done in the manufacturing field may be possible in other fields of business. It is the function of the purchasing agent, it seems to me, to be constantly exploring the possibilities for improved purchasing techniques.

The Broad View

My fifth specification would be this:

Tomorrow's purchasing agent must have a broad business understanding.

I mean something rather special by this. I am well aware that anyone who is going to buy in any market must be generally conscious of the trends of markets, the overall outlook for the nation and the world. All markets are to some extent related. But I believe that the function of the intelligent, forward-looking, purchasing agent is to be,

in addition, a good judge of the forces which make a particular source of supply a "good bet" over a period of years.

One manufacturer with whom we deal has been a low-cost producer for us. His prices have been low. But our information indicates that he is not doing a good job of studying his own costs and controlling his own business. His costs are on an upward curve. Either he is going to change his business management and get his costs leveled out and on a downward path or he is going to have trouble. If he keeps his prices low but his costs go up-he won't make any money out of our business and he won't be a long-pull member of our team. If he doesn't keep his prices down he is going to be passed pretty soon by another younger company that has its costs well under control and is steadily getting its costs

Profits and Wages

That, by the way, raises the whole question of profits. In our opinion, unless our suppliers have a good profit relationship with us, they are not for us. We believe in profits. This country was built by free men who did wonders because they were free to seek their fortunes and had an incentive to try.

The second item I want to lay before you is this; a purchasing agent must take into account the labor relations of a supplier today. The stability, security and earning power of an enterprise in 1947 depends to a considerable degree on its labor relations. If it has bad relations, it may prove to be an uncertain source of supply.

No enterprise is more in favor of high wages and high wage scales than the Ford Motor Company. That is the company's traditional position. But we are also conscious that the techniques which have produced a strong and wealthy country have been techniques leading to increased output and lower costs. It is mass production techniques which have produced high wagesnot high wages which have made mass markets and thus made mass production possible. The mass production hen clearly came ahead of the high-wage egg.

The purchasing agents of this country, buying soundly and economically for the American people, can make a substantial contribution to the soundness of our economy.

BUYING WELDMENTS

IS A STUDY IN PURCHASE ENGINEERING



By E. L. Cady •

Welding techniques offer a wide range of applications and advantages to the buyer who is technically informed as to their properties and limitations

WELDMENT is broadly, any assembly which is completed by welding. Thus a weldment may be a complete assembly such as a machine frame or base, a sub assembly such as a rim which is to be joined to a wheel web by a shrink or force fit, a preparational assembly such as the halves of a tube which are tack welded together in preparation for brazing their seams. Repair jobs, such as the welding of a broken machine part, usually are not called weldments. But a weldment may be made by any welding process such as arc, flame, forge, flash, spot, seam, butt or compression. It may be made by combinations of these methods.

Advantages Are Increasing

There are many reasons for buying weldments. Weldments can substitute for castings, especially when castings are hard to get. Weldments can have higher ratios of strength for weight, or of strength and functional utility for cost, than the parts they displace. They can reduce the costs of experimental machines, of converting existing machines to new tasks, of adding special tooling or other features to machines which are to be sold, of adding strength or stiffness or noise reduction to parts which are giving trouble. They can convert scrap into usable or salable products. At will, they can be hard or soft.

Weldments are about to increase their values. The welding industry has been making rapid technological progress. The metals show which was held in Atlantic City this winter contained so many improvements in welding processes that many who attended are calling it "the welding show."

Welding techniques are becoming so varied that it soon will be a rare factory which can afford so complete a weldery (welding department) that it could not to advantage buy weldments from contract welderies. And this is going to present technical difficulties. A survey of the engineers of some of the best welderies reveals that right now the average buyer is either so specifying his weldments that he pays more than he would if his specifications fitted his needs more precisely, or is so under-informing his weldery that he is not getting all of the value that his money could give him. Weldment buying is a study in purchase engineering. The right specification must be laid down, the right weldery selected.

Basic Qualities

Weld quality is not weld strength. Rather, it includes such factors as appearance, porosity, machinability, ductility (if the part is to be cold formed or hot formed after welding and the weld zone is to be formed in the process), cross crystallization, and the like.

Weld appearance may be very difficult to specify. Arc welding leaves a raised portion or bead



Portable resistance welding gun being used for fabricating G-E switchgear cubicle.

which, if necessary, may be planed or ground down so that when painted over it closely resembles the rest of the surface. Spot or projection welding, if done on some metals and on a high production basis, may leave a slight marking which is easily obliterated in the product finishing. Many different welding operations can be so performed that after the product is finished the weld zone is invisible to the naked eye. And very often the weld zone can be so placed that in the finished product it is wholly concealed.

Weld porosity, if held within reasonable limits, may have no effect whatever upon weld strength, according to recent engineering researches. It occurs most frequently in rod welding such as is done with arcs and with flames, but then, for all but the very thin sheet and other light materials work, rod welding is the most common way of making weldments. Porosity may affect appearance, and cannot be tolerated if the weldment is to hold gases or liquids at high pressures or if the pores will increase the problems of keeping the welded structures clean or will have any other bad effects. But to specify "completely free of porosity" when porosity makes no real difference may be to cause good welds to be chipped out and rewelded, and this has a bad effect upon prices.

Machinability and ductility are

thousands of weldments found that with a comparatively low cost welding process the weld zone wore out taps twice as fast as did the parent metal. With a higher cost welding process this trouble could be removed. There were two answers. One was that the costs of taps were far less than those of the higher cost welding. The other and final answer was that the weld zone could be so relocated that it was not necessary to drive taps through weld metal.

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Weld metal always is high cost metal. It is better not to lay it down and then machine it away if the weld zone can be so located in the product that this is possible.

Cross Crystallization

Cross crystallized or "inter-granulated" welding is a new industrial art although it may be an old but not previously discovered accomplishment. In its complete form it means a weld, resulting from the welding operation alone, so complete that ordinary etch and microscope techniques will not reveal any weld zone. In its less complete form this accomplishment is achieved



Illustrating submerged arc process. Light and sparks are "submerged" in granular flux which flows on the arc.

easy to achieve, but sometimes are high in cost. Any welding process can produce a weld zone which will behave exactly like the parent metal in nearly any given characteristic, although not always in all of the characteristics combined. Machinability is one characteristic, ductility is another. The weld zone can have exactly the same machinability as the parent metal, or can have slightly modified machinability. The modification may be less costly. One company which makes and uses

only if the weldment, including the weld zone, is heat treated subsequent to welding, or is forged and then heat treated.

In a still more modified form the crystals or grains of the parent metal body or bodies also comingle or intermingle across the weld zone, but the sizes or other characteristics of those crystals differ from those of the parent metal and therefore a weld zone can be found with the microscope.

Cross crystallized welding can be

done by flash welding techniques, by electrical resistance welding, by flame heated compression welding, or by any means in which parent metals are directly joined under compression and without the use or interposition of any rod or third metal. Accomplishing such welding by rod methods would be difficult since the rods rarely are of the same alloy composition and they seldom deposit metal of the same metallurgical structure as the parent metal.

Cross crystallized welding is useful when the weldment must have such severe local compression service as is found in ball bearing races, when under changes of temperature the weld zone must show exactly the same expansion and contraction as the parent metal and must not cause any out-of-roundness or out-of-flatness, when the electrical conductivity of the weld zone must exactly match that of the parent metal, when the corrosion or abrasion resistance of the weld zone must be exactly the same as that of the parent metal, when the other "physicals" of the entire weldment must be exactly alike.

for resistance to corrosion, abrasion, vibration, shock loads, plating off (the trick which stray electrical currents have of picking up metal of one alloy and carrying it across fluids to plate it on metal of another alloy, thus weakening a pipe or a vessel) and for other reasons. But if carried beyond necessary limits the specifying of weld quality always raises weldment costs.

Weld Efficiency

The efficiency of a weld zone is the ratio of its tensile strength to that of the parent metal. Weld efficiency can range from the 5% or less which exists at tack welds to well over 100%.

In the low carbon "welding grades" of steel, weld efficiencies of over 100% can be had by any known welding process. In some of the other metals, and in nearly all alloys in their casting forms, high welding efficiencies cannot be had by any welding process.

It often is more convenient to consider weld efficiency as the ratio of weld zone strength to that of any strength, such as shear or compression, of an equal section of anything other than tensile strength, the kind or kinds of strength needed by the welds or by the total of all the welds should be specified.

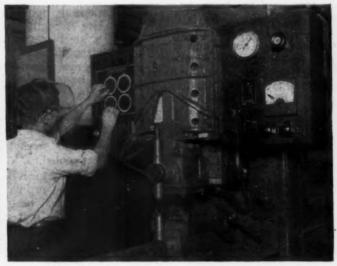
It is very easy to specify 100% weld efficiency. But unless actually needed, such a specification can be unnecessarily costly.

A too high weld efficiency specified for an arc or other rod weld can mean that the weld must be made on one side of the metal. chipped out on the other side and rewelded. If this or any other technique is used, it can mean placing the weld where it is possible to get at it for a weld of such high quality, and this position of the weld may be disadvantageous in regard to the ability of the part to perform its function and in regard to appearance. A 30% or 50% efficient weld made in a location on the weldment where a 100% efficient weld would be impossibly costly can result in a stronger and more useful weldment than could a 100% efficient weld made in any other

Welding is done at elevated temperatures, applied at local zones.



Flash welding in Fisher Body plant at Detroit.



Timing device assures split second control for perfect spot welding.

This exact duplication of the parent metal at the weld zone rarely is necessary. Nobody at this time knows how low in cost cross crystallization of welds will eventually become. Right now the process for all but a few specific weldments (such as high alloy rings) is high in cost. One or two qualities of the parent metals can be duplicated at the weld zone for much less cost, and duplication of all the qualities rarely is necessary.

Weld quality may need control

the parent metal. Where a series of welds holds two pieces of parent metal together, as in spot welding or in "skip" welding of any kind (in skip welding a series of disconnected weld zones holds the same pieces of parent metal against the same stresses) the cumulative or total strength of the welds may be more than 100% of the strength of the parent metal; this total strength may be called weld efficiency. But when weld efficiency is considered in terms of

These zones expand with the heat while the main bodies of parent metal remain relatively cool and unexpanded. When the weld zones cool they attempt to contract. So long as those zones are hot enough to remain plastic they can flow plastically enough to compensate for the contraction. When they no longer are plastic but are continuing to contract, then either the parent metal or some area of it must move or else the stresses of the contraction which was unable to take

place must remain locked up or "residual" in the weldments.

There are several things which can be done about this. One of them is to design the weldment with sufficiently heavy members so the total of all the operating stresses imposed upon it plus all the residual stresses will not be sufficient to make it too weak for its service. The extra weight and the extra bulk (if any) involved usually are surprisingly small and have no appreciable effect upon costs.

Another resource is to avoid requiring welds to have too high efficiencies. In general, although not always, the higher the weld efficiencies the higher the residual stresses. This is just one more of the ways in which the specification of too high efficiencies results in too

high costs.

A third method is to locate the weld zones where they bear such low stresses that they can take them while bearing their own residual stresses, or to make this location such that the directions of stresses will not be the same as those of the functional loads. For example, if a member has to bear bending loads for the most part, as is true with the boom on a crane, then the residual stresses can be so arranged as to be lengthwise or tensile to the boom, and if reasonably low they can be ignored.

The weldment often can be so designed that a good welding procedure is practical. This means that a reasonable amount of welding will be done at one weld zone, then that zone will be allowed to cool while the welder works at another, and then more will be done at the first zone, and so on. This avoids applying very much heat at any one time and keeps the total of the stresses

down.

The weldment sometimes can be designed for machine arc or some other form of machine welding. This can complete the weld quickly by pouring in a very large amount of heat within a very short time period. The area over which the weld zone expands and therefore over which residual stresses are set up, depends upon the specific heat and the thermal conductivity of the metal. Specific heat is the number of BTUs needed to raise the temperature of one pound of a material one degree Fahrenheit; thermal conductivity is the speed or rate at which the metal will conduct heat. In any steel whatever, the specific heat is high enough and the thermal conductivity low enough so the pouring of large quantities of heat for a brief time period into the weld zone will result in low total expansions of the parent metals and therefore in reasonably low residual stresses. In some alloys, especially the stainless steels, these factors are even more favorable.

Stress Relieving

If none of these resources will keep the residual stresses low enough, then stress relieving must be done.

Stress relieving may be done by several methods. Peening, high cycle vibrating, or other methods of making the parts do physical work are among them, but are less common because usually more costly than the use of heat.

Heat stress relieving itself is of two kinds. The more common and generally less costly one is to let the parts move or deform as they are heated and become weak enough to permit the stresses to cause this if the stresses are adequate to do it. The deformed parts then are straightened, machined to true shapes, or otherwise restored.

The second method is to hold the parts in clamps or by other means so they cannot move or deform. It depends upon the principle of relative strengths. At room temperature a steel piece may have a tensile strength of 90,000 psi. but at 1200 degrees F. only 6000 psi. Therefore, if heated to the 1200 degrees but held against motion there may still be residual stresses in the piece but they cannot be greater than 6000 psi., leaving 84,000 psi. of unstressed strength when the piece has cooled.

In any form of stress relieving by heat the ordinary design of weldment must be blocked up with fire bricks so that its own heat-weakened members will not sag or deform. It must be heated slowly and cooled slowly so that its thin sections do not change temperature faster than its thick ones and so set up stresses which are worse than the welding stresses.

Stress relieving of some weldments is inexpensive, but for most of them it is expensive. The highest costs are those of trying to save money in the stress relieving operation itself by not using clamps or not going to the cost of making specially shaped fire bricks to block the piece up. These savings of cost result in the piece deforming by its own heat-weakened weight. The deforming is blamed on "movements of the metal while the stresses were coming out", the costs arise in the subsequent machining and other corrective operations. And since some movement of metal not held against movement will occur in stress relieving, it may not be possible to know how much of the movement was caused by actual stresses and how much by saving money on stress relieving methods.

The best stress relief is a weldment design which needs no stress relief. Failing this, the stress relieving method should be discussed very carefully with the engineers of

the weldery.

Inspection Methods

Weld zones can be automatically inspected by stretching the entire weldment beyond its elastic limit. This often is done by making ring weldments smaller in diameter than they are wanted, then stretching them to size on hydraulic machines. It also is done when the weld zone together with areas of the parent metal is forged, spun, or otherwise deformed. In these cases no other tests should be needed.

Some types of welds can be X-rayed. A few of the cross crystal-lized welds appear to reveal nothing to the X-ray unless they are done

very badly indeed.

Magna-flux testing can be useful. Test bars can be cut through the weld zones and destructively tested for tensile, shear, bending and the

like, in the regular way.

Welds which are to be X-rayed or otherwise non-destructively tested must be out in the clear where the equipment can get at them. The test specification often forces the weld zone to be placed in a position highly disadvantageous to the product design. Unnecessary testing is a high cost operation which has a bad effect upon weldment prices as well as weldment designs.

Hundreds of thousands of weldment designs are being made every day; millions of weldments are in daily use; weldments are taken for granted in almost every kind of machinery and equipment. In spite of this there persists a certain fear of the abilities of welds to stand up. This fear leads to over-specifying of weld quality, weld efficiency, stress relieving and weld testing. All of these factors cause weldment prices to be higher than they need be, and the functional values of weldments to be lower than they very easily might be.

The answer is in very careful checking of weldment designs and specifications, followed by very thorough consultation with the en-

gineers of the welderies.

Pages From a Buyer's



Notebook

5% FOR QUALITY

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While the fact was not generally publicized at the time, it now appears that the government's official cost-of-living index for the past several years included an extra 5% advance to compensate for the inferior quality of merchandise available to the public, as compared with prewar standards. The 5% figure was somewhat arbitrarily selected. and it may or may not have accurately reflected the quality differential, but there are few who will disagree with the propriety of putting some such adjustment into the calculation.

The 5% has now been deleted from the index, a move that may be premature or over-optimistic on the part of the statisticians. The important part of the lesson remains—that it's not the dollar expenditure that counts, nor even how much you get for the dollar, but how much of what your dollar

I wonder how many buyers, and cost accountants, and general management executives, have given due weight to this quality factor in evaluating their purchases. Among the sloppy habits forced on us by the war was the acceptance of whatever we could get. The 5%, or more, of inferior quality became a part of our cost of business living, whether we knew it or not. A return to quality standards in buying is one of greatest responsibilities as we chart the course of future practice.

RECONVERSION PROBLEM

One of our large suppliers, who was among the first and loudest to insist that the government should do away with all industrial regulations the minute the war was over, hasn't yet gotten around to revising his own wartime reception room practice. You still sign the register in triplicate, state your errand in detail, wear the identification badge on your lapel, and sign out when you're finished. You still have the impression that the FBI is watching, and that if you glance to the left or right you'd be suspected of having designs on some atomic

Nobody resented these precautions so long as there was a reason for them, but in the vast majority of cases that reason has long since ceased to exist. Today, there's every reason to replace that system with a procedure that will impress the caller with the fact that he's welcome.

Admittedly, it's harder to abandon a procedure than to set it up in the first place. But since we are all concerned with reconversion, there's no better place to start than in the reception room, where first impressions—and lasting impressions—are made. It's high time to reconvert to the "open door" policy in the purchasing department, and to leave no doubt in the salesman's mind that the Welcome

BUYERS' MARKET IS HERE

A "buyers' market" isn't defined so much in the statistics of supply and demand as in the attitude of buyers and sellers. The trickle of new automobiles has not substantially altered the ratio of supply nor begun to satisfy the desire and need. But a good many prospective buyers who had their names on every dealer's list a few months ago, are now planning to postpone their purchases and wait out

A salesman of building materials complained to the market. me the other day. There is probably no field in which the buyers' market seems more remote, if you calculate it purely on a statistical basis. Yet he reports that buyers are getting very unreasonable in their demands, and sometimes downright abusive, when he offers them explanations in lieu of deliveries. The shortages still exist, and there is nothing

What this salesman doesn't understand is that he can do about it. the buyers' market has already arrived, so far as purchasing psychology is concerned, though his own particular line may be lagging behind or running counter to the general trend. And since this business of buying and selling is primarily a matter of human relationships, it behooves the seller to adjust himself to the buyer's state of mind now, if he expects to enjoy a favorable relationship when the market catches up with him, as sooner or later it

ECONOMIC IMPLICATIONS

When Howard Lewis started to discuss the economic implications of purchasing, years ago, many were inclined to dismiss the matter as academic rather than practical. Subsequent developments in the industrial and commercial world have shown that viewpoint to be not only intensely practical, but prophetic, and of immense importance.

Not very long ago, trust-busting Assistant Attorney General Wendell Berge declared that purchasing policies were the one factor in our business life that could preserve the competitive system. Buyers did continue their efforts to foster competition in a period when monopolistic tendencies were prevalent and the easiest course would have been to follow the crowd. At times the effort seemed hopeless, but in the long run it has been successful.

Now the emphasis is on cost. Between escalator clauses and price-at-time-of-shipment quotations, we have been in a fair way to put our whole economy on a cost-plus basis, with no incentive for production efficiency and no effective argument to combat unreasonable wage demands. The purchaser who opposed these tendencies was frequently opposing his own company's sales policy. The obvious implications of inflation and pricing ourselves out of world markets were overlooked.

Purchasing men do have a responsibility beyond their own companies, in the larger economic scheme. The constant search for maximum value is a healthy influence upon all phases of business.

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AN OPEN LETTER ON ESCALATION

Heaven is up . . . Escalation is up . . . So . . . ES CALATOR CLAUSES Saint Peter ed "ups" but no "downs". It's one Pearly Gates 1, Heaven B.Blank

Dear Sir:

My parents wanted me to go to trade school and learn to become a plumber—a nice, quiet, useful trade. Instead, I elected to go to college and become a Purchasing Agent. My application for entry into Heaven is attached hereto, indicating only my profession. Nothing else is filled in. I feel assured that you will approve this, blank though it is, for I have had my share of Hell, on earth.

The most recent application of heat thrust upon me, down here, is euphemistically known as the "Escalation Clause". Vendors use it like a hot iron. It provides for unlimitsided. Verily, it disturbeth my Scotch soul. In its warming presence I am constrained to write my vendors as follows:

"Your quotations made in response to our invitations to bid have consistently borne what amounts to an unlimited escalation clause. As a matter of purchasing policy, we have objected to this type of clause and feel that in subscribing to such a condition we would in effect be issuing blank checks instead of or-

"Our protestations have resulted in about 90% cooperation from suppliers or manufacturers, with a resultant limited escalator clause being submitted, varying from 5%



to 20%, according to the nature of

the product involved.

"We also feel that on items being shipped from stock, firm prices can be submitted. However, we also realize that a measure of protection may be necessary, covering possible material and labor increased costs wherein shipment is of long term.

"Since escalator clause practice is not standard in your particular field, and in view of recent unlimited escalation clauses submitted by you, we ask that your firm survey the matter with a view of submitting quotations on a firm price basis covering short term deliveries or limited escalation, at least, on items requiring a long period to make and ship."

As a result, many vendors reply and comply. Peace be upon their houses. Some refuse to comply, referring to many uncertainties of various sorts and degrees of importance, including Acts attributable Heavenward. On their houses bepeace also.

Those among the latter with whom I must deal, and who upon invoicing invoke escalation, I challenge to debate, should a goodly sum be involved.

My principle is: even though escalation is quoted, that does not necessarily mean it must be allowed. I must guard against a vendor submitting a figure which may be the low bid, but subject to escalation which, if invoked, will change his price and possibly make him the high bidder.

Every vendor exercising his assumed right of escalation shall be asked for a breakdown of such increase, for it may well be that neither his material nor his labor cost has increased from the date of the order to the date of shipment, but he is invoking the escalator clause simply because he has so quoted.

My policy shall be to protect the amount of profit contained in the vendor's original price, but shall not operate to increase the amount of profit on shipment. In addition, where escalation is exercised by the vendor, a request for a breakdown of cost may disclose that the percentage of increase is not on the total order price but on the value of material alone or on the value of labor alone. That is, in the event that the vendor's labor cost has increased and his material cost has not increased, then the escalation should apply to the cost of labor alone. The reverse condition may also be true.

There has been an instance where a fabricator quoted on making a shipment to me from material that he had in stock, on which the fabrication time had been six to eight weeks, and even though his labor cost did not increase, he escalated to the full extent of the percentage contained in his quotation and on the total order price. This should not be allowed without question, and a cost breakdown from that fabricator was requested. Result—No Escalation!

In the event that he insists his escalation still obtains, I will inform the vendor that on future bids he will be penalized in the weighing of his quotation to the full extent of the percentage of his escalation as quoted, since he invokes it. I cannot set up a standard policy to be followed, but each transaction shall be considered on its individual merits.

To sum up, I recognize the right of a vendor to protect the amount of profit represented in his original quoted price and in the event his actual costs are increased during the interim of fabrication (i.e., order date and shipping date) I will assist him in maintaining that same amount, but I will not permit him to increase his profit through escalation when his costs have not been increased. The stronger stand I take against escalation in general, the sooner there will be none; and as material becomes more readily available and competition becomes more general, the entire escalation situation will iron itself out. However, in the transition stage, I am not going to allow an escalated increase simply upon request, even though the vendor's quotation makes provision for same.

So, honored Sir, but one of the many tribulations besetting all Purchasing Agents has been set forth in this letter of transmittal. This one, however, is of such a nature that if a united front is presented against it by all Purchasing Agents, the world may be rid of a terrible, terrible evil, and may become a far, far better place. It would certainly be a far more pleasant place in which to spend these years of earthly toil, and future applications from vendors and Purchasing Agents alike could be more freely inscribed.

I therefore implore your influence to cause the Light of the United Front to enter the hearts of all, and I close with the words of Admiral Nimitz's battle prayer:

Give us the strength to accept with serenity

The things that cannot be changed.

Give us the courage to change the things

That can and should be changed. And give us the wisdom

to distinguish
The one from the other.

Amen

Respectfully yours,

JAMES A. WILEY

Purchasing Agent
Chemical Construction Corporation

New York

THE COST OF SMALL ORDERS

T HE purchaser, as well as the seller, stands to lose when goods are ordered in excessively small shipments, says an analysis of industry's small order problem made by the National Industrial Conference Board. More than a hundred companies cooperated in this survey. Many of them reported that the fixed costs of ordering, receiving, checking, placing in stock, making payment, and doing the necbookkeeping and clerical work incident to each transaction, raise the cost to the buyer out of all proportion to the value of the goods themselves. In the great majority of cases, such orders result in a loss for the vendor.

Handling Costs vs. Margin

One of the industries studied is electrical wholesaling. In the period just prior to the war, orders amounting to less than five dollars each constituted from 35% to 53% of the total number of transactions handled by electrical wholesalers. But it is estimated that this large number of orders represented only 2% to 3% of the total sales volume (dollars) of these concerns, and 3% or 4% of total gross margin.

"The real significance of this situation," the study states, "appears from the fact that the average size of orders under five dollars is actually around three dollars, upon which, at 25%, the gross margin is only 75 cents. Since the average expense per order is estimated to be three to four dollars, and at least a dollar and a half on a small cash sale, the effect on profits of a large volume of such small orders is not hard to gauge.'

In that instance, handling costs amounted to twice the gross margin, or more. Another illustration of the seriousness of the problem is furnished by a manufacturer of a related line of industrial and consumer products who reported that the firm had recently made an analysis of its two major lines. It was found that approximately 30% of the number of orders received represented less than 3% of the company's dollar volume of sales.

Survey shows this practice to be widely prevalent and thoroughly unsound from an economic viewpoint, for buyer and seller

"Although this does not mean that 30% of selling, warehousing, shipping, billing, collection, and other expenses were attributable to 3% of the company's sales, it does indicate that a disproportionate share most certainly was," the survey notes.

Types of Small Orders

Aside from the war-born varieties of small orders, the survey lists six common types that are encountered in the everyday experience of many concerns. These are:

1. Repair parts.

2. Oversight or "fill-in" orders.

3. Orders resulting from disorganized buying.
4. "Nature of the business" small

orders.

5. Drop shipments.

6. The small account.

Costs Rise Geometrically

One of the reporting companies, a chemical concern, states that the average increase in handling costs of small orders, compared with corresponding quantities in carload shipments is:

10 containers 60% 4 containers 135% 2 containers 270% 540% 1 container

It is significant that handling costs for small orders rise in geometric, not arithmetic, progression over carload quantities.

Solutions to the Problem

Several ways of meeting this problem are outlined, based on the practice of the companies cooperating in the study. These solutions include (1) reducing the costs of filling small orders; (2) passing on all or a part of the higher costs to the customer; (3) encouraging in-

creases in the size of orders; (4) discouraging small orders; or (5) refusing entirely to accept orders below a specified minimum.

Why Handle Small Orders?

Retention of customer good will is cited by the cooperating companies as the primary reason which prevents them from either refusing to handle small orders or attempting to compensate themselves in full for the added cost in filling them.

Among the manufacturers of equipment, both heavy and light, the majority of small orders arise from customers' needs for replacement parts. Although the fulfillment of these orders, even at a loss, is also the result of a desire to retain the good will of customers, the real need is far more urgent than in those cases where small orders are filled merely as an accommodation. In the latter case, the customer can usually have his needs satisfied elsewhere. In the case of replacement parts, it may be extremely difficult or even impossible for the customer to get proper parts elsewhere.

The need for remaining competitive has limited many companies in their efforts to cure their smallorder problem. It is difficult, they state, for a single company to institute and carry through a plan when the rest of the industry, or a substantial part of it, does not follow

Nature of Product

The nature of the product is cited as another reason for handling small orders. In the drug field, one firm reports, "Many of our products have definite dates of expiration for use, particularly biologicals, such as vaccines. As a result, distributors buy in small quantities so as to assure the physician using the product that it is of recent manufacture and, therefore, highly potent."

Some firms, on the other hand, consider small orders an asset which "in no small way contribute to the growth of the company". Others, seeking distribution of nationally advertised brands, accept small orders readily so as to assure complete store coverage.

RECOVERY AND RE-USE OF INDOOR AIR



By George E. Henry •

Air conservation made possible by the sorbent properties of activated carbon paves the way for substantial economies in costs of winter heating and summer cooling, and in required capacity of air conditioning installations

THESE are times for cutting costs. Any process which does that and at the same time improves operating conditions for humans and machines is doubly worthy of consideration. A process that does that very thing, that conserves fuel and electrical energy and at the same time makes for contented employees, making for considerable money saving and increased employee efficiency, revolves around the use of carbon sorbents as one of the new phases of structural air conditioning.

As is well known, air conditioning is a complex process embodying several major phases, namely, tempering indoor air by heating or cooling, dehumidification or humidification, draftless air motion, and air

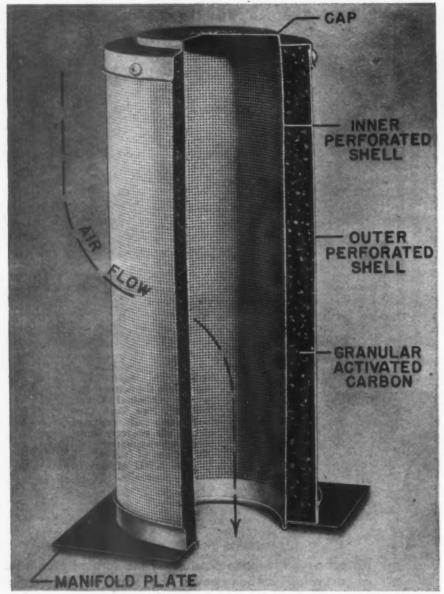
cleaning. It has long since been demonstrated that such control of indoor atmospheres is a dependable means to improved production and elimination of spoilage and rejects, aside from the factor of employee comfort.

Complete air conditioning now involves the factor of air conservation — a new thought to most persons. Air conservation pertains to the recovery or re-use of used indoor air, in the interest of efficiency and economy in air conditioning. Air conservation is accomplished by purifying used air with the help of the sorbent properties of what technical men call activated carbon, through which contaminated indoor air is circulated. Activated carbon has many technical uses,

such as water purification, solvent recovery, decolorization, fractionation, and in catalysis; as well as indoor air purification.

Air recovery is a timely subject, for reports indicate that industry contemplates vastly increased utilization of air-conditioning where controlled indoor atmospheres are essential to optimum operating conditions for industrial processes and the physical comfort of employees. The latter benefit is of itself of major importance, for the operator seething in humid, overheated, contaminated air is unable to maintain a high degree of efficiency.

It should be explained that physical discomfort in most interiors is born of atmospheric contamination caused by inefficient ventilation.



Cut-away view of canister, showing how air must pass through a uniformly thick bed of activated carbon.

(Equipment views by courtesy of W. B. Connor Engineering Corp.)

Many persons feel that such discomfort is caused by lack of oxygen, but such is not the case.

In this connection, the Heating, Ventilating and Air Conditioning Guide promulgated by the American Society of Heating and Ventilating Engineers, states:

"Contrary to old theories, the usual changes in oxygen and carbon dioxide are of no physiological concern because they are too small to produce appreciable effects even under the worst conditions of normal human occupancy. Only in such unusually air-tight enclosures as submarines, need the increase in carbon dioxide and the reduction in oxygen be considered."

Many tests conducted by physiologists have demonstrated that the

discomfort of many interiors is born of the lack of air motion rather than lack of oxygen,

If air is dank and static, the body is unable to adequately dissipate heat and moisture, and the result is pronounced physical discomfort. A closed telephone booth in mid-August is a good example. On the other hand, if the air is sufficiently active, body dissipation of heat and moisture is accelerated, and discomfort is materially minimized, or avoided, as demonstrated by exposure to 90 degrees F. temperature on a breeze-bathed beach. In like vein, properly engineered indoor air conditioning minimizes indoor discomforts. Complement typical air conditioning with air purification in large offices and factory interiors,

and you have what the physicist terms an economical optimum atmosphere for either human occupancy or a manufacturing operation.

Especial attention is directed to the factor of air-purification, for it involves more than the removal of dust particles, pollens and the residue of incomplete combustion by air scrubbing or electronic precipitation. Accomplished by activated carbon, it removes vaporous gases which cannot be completely removed by water scrubbing or common filters, and makes practical the use and reuse of recirculated air. This in turn opens the way for effecting definite economies in the cost of operating heating or refrigerating installations. Moreover, there are instances where savings have been made in original installations.

How Activated Carbon Works

It is well to explain the properties of activated carbon, which is one of several materials including charcoal, silicon, alumina, mica, glass and other minerals which have sorbent properties, that is, the properties of absorption and adsorption.

Activated carbon is a specially processed carbon of dense structure and extreme relative hardness, which will extract very small quan-

Side of casing removed to show direction of air flow through a typical canister arrangement.



tities of a variety of glass and vapors from air instantaneously. The exterior and interior of the activated particles are featured by a vast network of minute channels and sub-microscopic pores whose cumulative magnitude is enormous. The aggregate area of these surfaces in one pound (52 cu. in.) of granular activated carbon approximates 140 acres. While its activity for water vapor is high, retentivity thereof is practically nil, for sorbed vapors and gases cause elimination of the water vapor. Thus, humidity does not affect the efficiency of activated carbon air purification applied to ventilation.

Air conservation, made possible by activated carbon, is primarily a process, in connection with air conditioning and ventilating, for effecting operating economies. Air conditioning (heating, cooling, cleaning) involves heavy costs for fuel, power and maintenance.

Conservation of Air

Not only does air conservation make feasible the use of recirculated air, making it acceptable for human consumption and industrial processes, but it involves reduction of outdoor air intake to supplant air removed by ventilation. It makes for substantial operating savings for it conserves indoor air that has been heated or cooled and which normally is vented into the wide open spaces because of sensible contaminations, and replaced with outdoor air which in turn requires conditioning to meet occupancy or manufacturing requirements.

Obviously, there is no need for frequent complete mechanical exhaustion of air from building interiors. Purification of the existing supply, giving due consideration to the infiltration factor, occupancy, and air motion, provides all the "fresh" air that may be required.

Ventilation is essentially dilution of existing air supply, and its function is to continually displace contaminated indoor air with "fresh" air at a rate that will maintain an optimum interior atmosphere, or say a minimum threshhold concentration of air-entrained impurities. It entails the constant replacement of expensively conditioned indoor air, with outdoor air and subsequent demands on the heating or refrigerating system to condition the new air.

As is readily apparent, it is sheer waste to constantly exhaust already tempered air (heated, or cooled) into the great outdoors when that aircan be made entirely agreeable and fit for human consumption by the simple process of purification. The constant recirculation and purification of the existing air supply minimizes the demands upon heating or cooling systems. The air is already conditioned and its recovery and use in lieu of new, unconditioned, outdoor air materially reduces the operating and maintenance load on existing equipment.

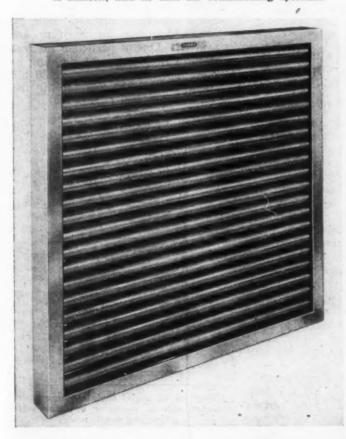
Types of Contamination

Air that is economically recoverable includes that which has been contaminated by impurities normally contributed by building occupants and their activities, or by foods, tobacco smoke, liquor, machines and kindred sources, air from toilets, locker rooms, cafeterias, and so on. Activated carbon quickly removes disagreeable odors and impurities of this type.

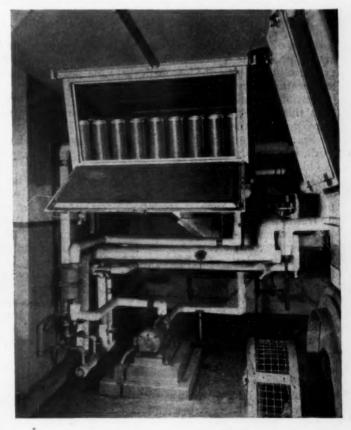
This is also true of many of the irritant contaminants in the recovery of volatiles in the air of smokeless powder plants, printing plants, fabric, plastic and other industrial plants.

Incidentally, it should be emphasized that specially impregnated carbon, and in some instances, other sorbents, should be employed for the

Special types of equipment are used where space is limited, and in unit air conditioning systems.



Canisters are installed in the air duct of a large central station type of air conditioning system.





Air recovery units eliminated sulphidic gas emanations at this New Jersey plant which previously created a neighborhood nuisance.

sorption of ammonia, formaldehyde, arsine, phosphine, cyanogen, hydrocyanic acid and gases of low critical temperature, developed in various industrial operations.

In this connection, the Research Department of the Hospital Bureau of Standards and Supplies, New York, in a report on "The Problem of Odors in Institutions", states: "There is no magical chemical

"There is no magical chemical compound or liquid which will clean and purify air to give it 'country air freshness'. Most widely sold deodorizing materials only substitute one odor for another.

"Good ventilation and frequent cleaning will usually solve the odor problem in such areas as washrooms and kitchens.

"Extensive tests have shown that only one product — activated carbon — will, because of its great absorption properties, eliminate nauseating odors.

"Only two methods are at present adaptable to odors arising from putrefaction. One is a mechanical device, the other is a medical filter cloth. Both use activated carbon as the absorbent material."

Methods of Purification

The elimination of vaporous gases, the most common element in air pollution has been the subject of extensive experimental work for years. Various processes have been employed. It has been found that agents which will actually destroy or alter the chemical composition of the diffused substances are often toxic or likely to produce toxic or harmful effects. Some agents do not decompose or change the existing impurities, merely serve as a screen, supplanting a disagreeable odor with a stronger one having what are thought to be more agreeable characteristics. This has the effect of adding to rather than reducing contamination.

The employment of condensation through reduction in air temperatures, while useful in certain laboratory operations, offers no possibilities for large scale air purification, for the reason that their dew-point temperature is well below zero Fahrenheit.

Air washing, or scrubbing, has been found to be excessively costly and decidedly limited in its effectiveness. The processes involve expensive controls, and engineers claim that such processes seldom prevent some re-evaporation and escape of dissolved impurities. Also, such processes are the cause of excessive moisture saturation of the air, requiring supplementary dehumidification equipment. Generally, while air washing contributes to cooling and dehumidification, or humidification, it is impracticable and inadequate for purifying air.

The most practical, simple and thoroughly effective means of purifying the air by removal of nearly all odorous and objectionable gases and vapors, has been found to be the process of adsorption.

As previously mentioned, activated carbon is especially adapted for air conservation for it has a unique affinity for extraneous gases and vapors which it tenaciously holds until it is forced to release them by special processes. For use in air conditioning, the carbon is especially processed, crushed and screened to precise and uniform requirements.

Operating Economies

Numerous examples of the decided economies made possible by activated carbon air recovery are available. One of particular interest is the Criminal Courts Building in New York City which has 30 air conditioning units for serving the (Please turn to page 356)

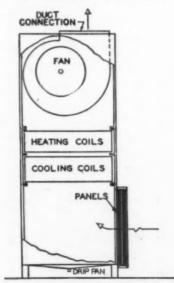


Diagram of panel installation on airreturn side of room or in small selfcontained conditioner.



RUSINESS HYPOCHONDRI

By Grey Leslie

M OST of us are familiar with that unfortunate type of human being who always carries a bottle of pills and a thermometer, and takes his temperature and pulse at regular intervals during the day and night. We seem to be developing a similar morbid anxiety about our economic health. We are in danger of becoming a nation of business hypochondriacs.

The steady parade of economic forecasts, from all quarters, is usurping attention and energy that normally should be applied to our particular jobs. We have acquired a lazy habit of taking ideas and prophesies ready-made without examining their source, qualification or integrity. The net result of this spate of business prognoses, and the statistics allegedly supporting them, by pseudo "economists" in and out of government, seems to be complete bewilderment. It distracts us from our main work of procurement and production and makes us unwitting victims of questionable soothsayers.

It is bad enough that we are swamped by the effusions of economic dilettantes who find easy and profitable publicity in their business of scare forecasting. But it is distressing to find government officials assuming government authority in the issuance of rigged statistics to serve political ends. It is significant that in most instances the forecasts come at a time when Congress is being urged to adopt some questionable economic policies that the forecasting officials favor.

We are painfully reminded of the dismal warning after V-J Day that the nation faced ten million unemployed. We recall the measures suggested to counteract the serious economic consequences latent in such a volume of unemployment. That prophecy turned out to be not only bad guessing but bad politics.

We remember the Government Report purporting to show that industry "could afford" to pay sub-stantial wage increases without raising prices. That too was significant, since it was made public "unofficially" at a decisive point in labor-management negotiations and was used by labor leaders as official government support and sanction for their demands.

Later we were warned that runaway price increases would develop if price controls were modified or suspended. All of the propaganda machinery of government was put in motion to gain credence through repetition. We were expected to accept these pronouncements with all the seriousness and authority of a mandate from a Cumaean Sibyl. The "terrific meat shortage" shibboleth was only one of several that was completely discredited. The scares turned out to be mythical crises.

To most people, Government statistics represent the collection and tabulation of authentic data. Government has the authority, the power, and the facilities to get information that is not available and, in some cases, forbidden to others. If the official analyses of the data suggest certain conclusions, we must be assured that the conclusions or hypotheses are not being formulated for political purposes or instigated by pressure groups. Without firm assurance, not only will the conclusions themselves be suspect, but confidence in the basic data will be destroyed

Such a situation is far more serious than the occasional exposure of unscrupulous political use of government statistics to promote partisan measures. It threatens the whole idea of arbitration of social conflicts on the basis of agreedupon facts and the recognition of

their validity.

The Eightieth Congress can render the nation a measurable service in making one of its major objectives the restoration of public confidence in the statistics and data released by any government agency. It can best renew that confidence by making the releasing official or agency fully responsible for the validity of the data. It can restrict the interpretation and forecasts to factual analyses based on such statistics without a taint of politics or partisanship, or the favoritism of any special group. In no other way can the integrity of official data be reestablished and command the respect and confidence of the public, for whom the collection and publication were designed to serve.

An infinite variety of public opinions, business programs and economic policies depend almost wholly on Government statistics. This is so because only the Government possesses the machinery to collect them. If the facts are fully and honestly presented without bias or prejudice, the trends they reflect will be obvious enough to those accustomed to statistical analysis. They require no extended governmental interpretation or speculations such as we have had in the recent past. After all, interpretations and forecasts depend largely upon personal and particular judgments and the responsibility for the proper and intelligent appraisal of the facts behind them must rest upon the people who use the statistics.

Fortunately there is in government, a large group of statisticians highly imbued with a sense of scientific integrity. They have become discouraged and discomforted by seeing their work misused and disby conniving politicians. Notwithstanding whatever chagrin these devoted civil servants may feel, they still perform a service that can be of inestimable value to business men and industry. The Department of Commerce, particularly, is prepared to furnish reliable statistics, without prejudiced opinions, in all fields of industrial endeavor. From such authentic data it should be possible for individual managements to formulate their own policies based upon the accurate historical record and the trends the statistics indicate.

On the non-government side, it would appear that almost anyone who can spin out a fantastic theory concerning procurement, produc-tion, employment or national income, based upon an imposing array of questionable statistics, can find a ready audience. One marvels at the reputations that have been made by coiners of economic slogans. Many business executives have come to the habit of listening to these self-appointed prophets with all the avidity of Shakespeare's blacksmith. It is significant that the majority of the forecasts so glibly tossed about are in the scare" category. There seems to be a chain reaction about the spirit of pessimism they embody. It spreads throughout the business community like a prairie fire. The victims of vague fear on the street and in the market place are impeding the progress of the nation.

It should be clear that there are dangers in this situation. We may be succumbing to a forecasting mania. We may be sacrificing far too much time and thought to the forecasting specialists-placing undue emphasis on their unqualified prognostications, and neglecting or subordinating the close application of our thinking and energies to our individual business problems. Perhaps we are giving too much credence to the economic innovators who may be actually holding back the return of economic health. We may be getting mentally sick with vain imaginings.

Economists of proven reputation are rarely found in the company of the scare prophets. Even academic stalwarts like Professors Hansen and Crum of Harvard may have opinions as wide apart as the poles, but a spirit of optimism pervades all their works. Fisher and Babson.

Poor and Zelomek, may not always concur, but in all of their pronouncements there is common agreement that America is all right if Americans are not all wrong.

Purchasing Agents who are capable of the responsibility for long-range procurement planning can find no better nor more reliable data for their individual problems than the Bulletins of the National Association of Purchasing Agents and their own Purchasing magazines. There they will find realistic, timely digests of the best reporting agencies and services. They are worth carloads of the polemical drivel clamoring for attention and patronage—the kind of stuff that muddies the waters and makes economics an even more dismal subject than Carlyle proclaimed it.

These sources are custom-built for our use; they speak our language and will be of inestimable help to our own careful, responsible, unemotional thinking. If used assiduously, they can help us develop our own practical brand of economic literacy.

GETTYSBURG
ADDRESS
ENGRAVED
ON HEAD
OF A PIN
254

"How much to letter in a little clause on a contract?"

PRODUCT DELIVERY INFORMATION

DAY is Delivery Day, the potential delivery date for materials, components, equipment and supplies needed by industry for production, operation, maintenance and plant expansion programs. This is the second of these reports in the compilation of which some 300 manufacturers have collaborated.

Particular attention is called to the fact that Delivery Information in many instances is based on information supplied by manufacturers of identical products. Accordingly, in some cases there is considerable variance in delivery time reported by these respective manufacturers, and the indicated delivery is the range of delivery time reported by them.

It is felt that Delivery Information is of prime importance not only to men in purchasing, but to management, production, sales and finance, and others concerned with current and planned production and plant expansion programs.

Your suggestions as to how this report can be made

of more practical value to you are invited.

DELIVERY TIME

Standard Products

Special Order

AUTOMATIC CONTROLS

Immediate-3 weeks

1 to 6 months

CHEMICALS

Ammonia, Anhydrous

Immediate

Carbolic Acid

Tight: Annual production entirely committed under contract. Shipments restricted to customers' monthly quotas. Nitric Acid

Same

Sulphuric Acid

Same One company reports that shortage of carboys has hampered deliveries, rather than shortage of these acids. **Formaldehyde**

Very short supply.

Cannot accept additional orders.

CONTAINERS

Bags. Paper

30 - 60 days

60 - 90 days

(Spl. orders not accepted).

Boxes, Corrugated 14 weeks

8 to 17 weeks Boxes, Solid Fibre

8 weeks Spl. orders not accepted

Boxes, Fibre, Cleated 12 weeks

Spl. orders not accepted Boxes, Paper, Folding

Some prompt 6 to 7 months Box and paperboard manufacturers are experiencing state of confusion and uncertainty, reports N.P.B.M.A. Fabricators have bare floors and practically no inventory. Mills claim they do not take on new accounts; wartime allotments to respective customers still in effect.

Boxes, Wirebound

1 to 5 months Cooperage, Slack

2 to 3 weeks 2 to 3 days

Cooperage, Tight 2 to 4 weeks 12 weeks

BEARINGS

Ball Bearings

3 to 4 months 4 to 6 months

Bearings, Roller 3 to 4 months 4 to 6 months

Bearings, Bronze

Stock 10 to 24 weeks, depending ing upon type and size upon type and quantity Pillow Blocks

9 months 12 months

Packings, Leather 1 to 3 weeks weeks if new mold

Shafting, Iron & Steel 5 months 7 months

BELTING

Leather

3 to 8 weeks Stock to 5 weeks V-Belting, Leather

Stock 3 weeks **DELIVERY TIME**

Standard Products

Special Order

INDUSTRIAL COATING EQUIPMENT

Baking Ovens

6 weeks

Booths, Spray Painting 12 to 24 weeks 10 to 16 weeks

Paint Spraying Equipment 24 weeks 12 weeks

FASTENERS

Bolts, Nuts (From Stock)

1 to 10 months 6 to 12 months Bolts, Nuts (Production)

2 to 4 months 4 to 6 months

Bolts, 1/4 & 5/16 dia. Indefinite Indefinite

Bolts, 3/8 & 7/16 3 months 3 to 4 months

Washers (From stock) 3 to 6 weeks

Washers (Producton)

2 to 3 months 2 to 3 months

Nuts. Screws to 12 months

"One of tightest items; industry has tremendous back-log. If we were able to obtain raw material, situation would ease rapidly. On milled specials can give 1 to 3 months delivery."

FITTINGS

Brass, Bronze

3 to 12 months

Malleable Iron 24 to 40 months

Stock, small quantities to established accounts 60 days, large quantities to established accounts. 60 to 120 days Established accounts only.

ELECTRICAL

Cables, Wire

4 to 9 months 4 to 9 months

Cables & Wire I to 3 months 5 to 6 months

Wire, Insulated 1 to 3 months 5 to 6 months

Wiring Devices 3 months 6 to 8 months

Conduits, Flexible

1 to 5 months 11/2 to 6 months

Generators

12 months

Motors, Electric Polyphase 1 - 15 h-p

60 weeks, slightly shorter on

strictly standard 42 weeks, 20 to 75 h-p 62 weeks, up to 200 h-p

Fractional h-p

All fractional except aircraft, 2 years
Civilian Products Administration states 1946 ended with
backlog of 40,266,000 unfilled orders, or the equivalent
of 19 months' shipments at December rate of 2,117,943.
Production is increasing, according to CPA and may reach
maximum of 2,750,000 units per month. Order cancellations are increasing. tions are increasing.

CART	THE CARE	CHAR
SW	IIICH	GEAR

SWIT	CH GEAR
Bi	reakers
Up to 2.3 KV 2.3 to 6.6 KV Over 6.6 KV	Air Oil 45 weeks 45 weeks 85 weeks 45 weeks 85 weeks 85 weeks
Up to 180 days, depending series parallel combination	pacitors g on rating of units desired in n, nsformers
1½ to 50 KVA — on al 75 to 100 KVA — 12 to 100 to 500 KVA — 15 to	tribution)
66 to 5000 KVA — 15 5000 KVA and over — 2	to 18 months years
	RNACES
4 to 10 weeks	Treating 8 to 32 weeks
	reosoted
2 months	
1 to 2 months	Fir Unobtainable od, Northern
Immediate	24 - D2
Delayed delivery (mills ov Yel	ite Pine ersold) low Pine
2 months	
1 to 2 months	Cypress Unobtainable
MATERIA	L HANDLING
_	ers, Truck
1 month	in, Steel 3 months
2 to 7 months	2 to 7 months
10 to 12 months	yor Belting Indefinite
9 to 12 months Elevat	9 to 12 months
10 months Elevators, 1 to 4 months	Portable, Tiering 3 to 7 months
4 to 8 months	ntform, Portable 7 to 9 months
2 to 8 months	Truck, Wagon 6 to 11 months
3 months	asoline, Industrial 4 months
3 months	lectric, Industrial 4 months
6 to 12 weeks	ctory, Warehouse 10 to 24 weeks
6 months	vy Duty Machinery 8 months
2 weeks	s, Industrial 8 weeks lectric, Industrial
2000 - 3000 lb. fork, 30 4000 - 6000 lb. fork, 60	days
3-ton low-lift, 45 days 5-ton high-lift, 5 months	
Crane trucks, 2-½ month Special models, 10 to 18	months
5 months	Electric, Ind.
	uck Skids 6 months
Power	Trucks, Lift
1 month	PIPE

Brass

Brass

Raw material situation critical. 30-day-delivery on brass pipe does not indicate item is in free supply, but only that production is balanced to enable delivery of reasonable amounts. Could not handle new demands for this item. Other products not so simple as standard items like brass. Can only quote deliveries on specific inquiries.

Copper

Shortage 500,000 tons. It is reported that quantities of foreign copper earmarked for domestic use have been contrasted for. Excise tax 4c, which would boost price

to 241/2c. Movement underway looking to repeal or sus-

pension of copper duty. Pipe Fabricated	•
1 month	to 3 months
PIPING	
Exhaust and Blow	
	to 3 months
Steel, Welded, Riveted	
3 months	Indefinite
	Indemnite
PUMPS, CENTRIFUGAL	
Deep Well Turbines	
35 weeks	50 weeks
Side Suction	
14 weeks	45 weeks
Non-Clog Pumps	TO WCCES
20 weeks	45 weeks
Sump Pumps	TO WCCES
16 weeks	45 weeks
	TO WCCKS
Mixed Flow Pumps	45
24 weeks	45 weeks
Close Coupled Pumps	
22 weeks	45 weeks
Pumps, Centrifugal	
No Motor	
12 weeks	24 weeks
Pumps, Hydraulic	
No Standard	
24 weeks	
Pumps, Power	
16 weeks	24 weeks
Pumps, Power, Turbine Type	
8 weeks	35 weeks
Pumps, Power, Water System	oo weeks
52 weeks	52 weeks
Pumps, Power, Cellar Drainer	
70 weeks	70 weeks
	10 WCCKS
STEEL, CARBON	
5 months	7 months
SPEED REDUCERS	
	0 - 14 weeks
SPROCKETS	O - IT WEEKS
	6 to 8 weeks
GEARS	
2 to 8 weeks	to 14 weeks
VALVES	
Bronze	
3 to 5 months	
Valves, Iron	
1 to 3 months	
Valves, Steel	
1 to 2 months	
Valves, General	
Stock or 30 days max,	60 days

ANTIMONY

Order M-112 conserves available antimony by regulating the delivery and acceptance of all forms — ores, concentrates, metal, alloys, and primary products.

CORDAGE FIBERS, HARD

Manila, Sisal and Henequen
Receipts in 1947 will be half of anticipated unrestricted
demands. Cordage Order M-84 controls the end uses of
these fibers by limiting them to the manufacture of specified rope or binder and baler twine, production of which is scheduled under established quotas among processors. Sisal and henequen are purchased publicly and distributed equitably among processors of permitted products. A greater portion of the Manila supply is imported privately, and processors' inventories are limited to a 90-day supply. Exports of cordage fibers and their products are also controlled by the order.

LEAD 2 to 3 weeks 4 to 6 weeks TIN

Conservation Order M-43 places limits on deliveries of pig tin and on the quantities of tin used in manufacturing, Order M-81 controls the production of tin cans.

RUBBER

Rubber Order R-1 allocates all rubber imported by and manufactured in this country except neoprene and privately produced N-type synthetics.

By Irma Fuehr • THE BUYER'S



The Fable of the Plant that Went to Pot

O N the third day on his new job at the Zenith Corporation Jay Jones, purchasing agent, surveyed the last of a sheaf of doodles he'd just completed. Even his untrained eyes told him that this was not the ' work of a first-rate doodler. The pine trees were lopsided, the ovals amateurish. He tried to banish his uneasiness. "After all, my job isn't doodling. It's purchasing. It's building inventories and ordering materials and seeing salesmen-

Those last two words gave him a start. "Say, that's why I've been doodling! In almost twenty hours at Zenith I haven't seen hide nor hair nor brief case of a single salesman. No wonder I'm unhappy. I'm lonesome for salesmen. In fact, I'm downright helpless without them!"

A man of action, Jones jammed his dead cigar butt farther to the left, reached for the telephone, and asked for Smithers, the superintendent of Zenith. Waiting for him to answer, Jones planned what he would say. "Smithers," he said, mentally, "do you realize that we're poison to salesmen? We need a campaign to lure them back. We ought to—"

But here Smithers' secretary interrupted. "Sorry," she crooned. "The boss is busy with Mr. Tercer, salesman for the Tipkin Twist Drill Company."

"Connect me the minute Tercer leaves," answered Jones.

Jones waited, doodling a page of cats that bore faint resemblance to any animal—present, prehistoric, or future. Still Smithers had not called.

Jones picked up the phone again. The secretary informed him that Tercer had left but that at present Chuck Chase of Chosen Machines was closeted with the boss.

Jones put the phone back. Now he knew what the score was, and like most scores, it was awful. His heart weighted as if with steel ingots, he strode to the cafeteria for a cup of coffee, considering how he would word his resignation.

In the cafeteria Mabry from Maintenance and Prosser from Production and Engels from Engineering waved him to their table. Jones sat down, glum as a winter

"What are you waiting to see Smithers about?" Mabry asked him.
"Me? How did you know I was

waiting?" asked Jones.

The men guffawed at Jones's naivete. "How do we know?" roared Mabry. "Because we're waiting too. We call this the waiting table. We sit here and drink coffee and wait for salesmen to leave. Yesterday Prosser was lucky, though. He rushed the door just as a salesman left, and got to talk with Smithers for five minutes before he had to make way for another salesman."

"Nevertheless, this waiting is giving me stomach ulcers," Prosser. "Besides, the doc told me to cut out the java. And without coffee how can I wait for

Smithers?"

"What happens to your depart-ments while you wait?" said Jones. "Oh, they go to pot," said Mabry. "In fact, they've gone there already. They've been all fouled up ever since Smithers came in as superintendent."

Jones plunked down his cup with a clatter. "You guys can wait if you want to. I'm quitting. I'm no good at buying if I don't know my salesmen. I'm no good at waiting, either, or at bearing stomach ulcers with cheer and fortitude. Hereafter you will see me in the classified ads.'

"Huh?" said M, P, and E. "Say, you give me an idea!"

"For two months I've been waiting to get Smithers' okay on clearing out 418 to make room for those new boring machines," complained Mabry. "As of this instant, I'm fed up. And not on coffee."

Prosser complained, too. "And for two months I've been panting for those same boring machines, he said. "Things could really be moving if I had them. I'm fed up, too. To here." He indicated a height half a foot above his bald spot.

"And I-" complained Engels. But he didn't get a chance to finish. Suddenly the four were standing.

"I'll type my resignation so that it covers us all," said Jones. "I guess we'll have to mail it to him."

They trooped up to Jones's office, and a few minutes later they trooped out. In the hall they actually saw Smithers. But he was talking to a salesman and was too engrossed to notice them. So they had to mail their resignation after all.

Moral: A salesman in the buyer's hand is worth two in the supt's. And/or: Hot coffee is cold comfort

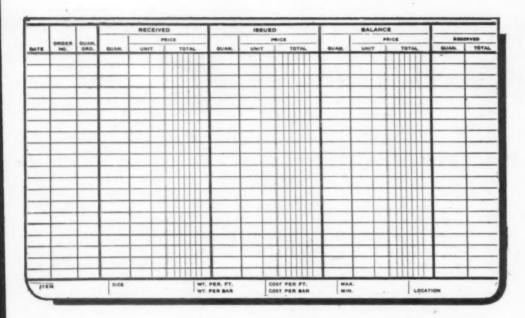
for a real job.

PURCHASING AND INVENTORY CONTROL

• By F. W. Witherington

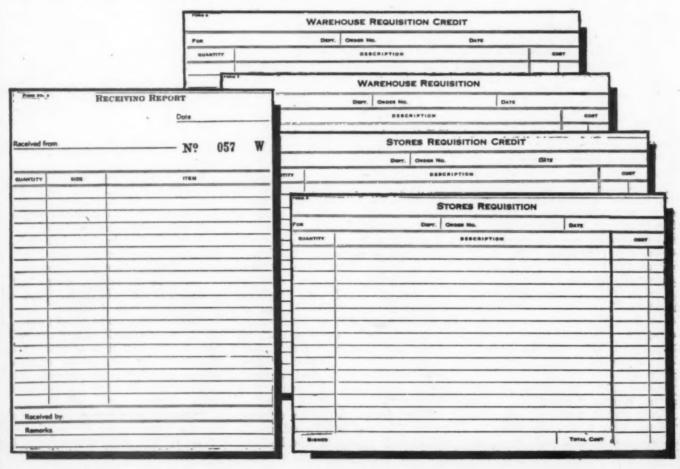
Purchasing Agent, Southern Car & Manufacturing Co., Birmingham

A simple and positive system coordinating purchasing and stores records, providing accurate inventory control from the angle of physical quantity and dollar valuation



After materials are received, the control record and all issues and credits to stores are carried by dollar value as well as unit quantity. Valuations of stock balances for warehouse steel items and all manufacturing materials are "taped" and the totals reported to the accounting department at the end of each month. Supply items are valued and reported to accounting once every six months.

Inventory is set up in three divisions — steel, materials, and supplies.



The business of the Southern Car & Manufacturing Company consists of a manu-PURCHASE ORDER No 4239 P facturing department making mine and industrial cars, and a warehouse steel department for retail sales. SOUTHERN CAR & MANUFACTURING CO. DIVISION OF EMPIRE INDUSTRIES.

O. BOX 2312 * BIRMINGHAM, ALA P. O. BOX 2312 BIRMINGHAM, ALABAMA In a recent revision of functional organization, inventory control and purchasing were SHIP TO combined in one department. Procedure FOB. TERMS is the same for both divisions of the business, but is set up to provide a clear picture of both activities at all times. SOUTHERN CAR & MANUFACTURING CO. P. O. BOX 2312 BIRMINGHAM, ALABAMA REQUEST FOR QUOTATION NOTIFY US IMMEDIATELY IF ANY OF THE ABOVE IT Please quote us your best prices on the material listed below. ITEM NO. QUANTITY DESCRIPTION The purchase order (above) is made out in quadruplicate, the various copies identified by distinguishing colors. Distribution of this form is as follows: Original sent to the vendor. Duplicate retained by purchasing department for open order file. Very truly yours. Terms Triplicate to storekeeper. Purchasing Agent Date of shipment Quadruplicate retained in purchasing PLEASE INDICATE YOUR PRICES AND TERMS ON THE ATTACHED DUPLICATE department for numerical reference and statistical data.

Purchase requisitions (below) for all

stock items and supplies, are issued

from the stores department.

The symbol "W" shown on the receiving report (opposite page) signifies that this is a delivery of warehouse steel. Deliveries of supply items and stores materials are identified by using the symbol "S". Stock records and accounting are simplified by allocating each shipment to its proper category immediately at the time of receipt.

Requisitions on stores and for steel, and credits for all steel and supplies returned to stock, originate with the foreman. They are posted to inventory control as soon as issued, priced from the control record, and passed along to the accounting department for charging to the appropriate accounts.

The entire system is simple and positive in operation, providing accurate and upto-the-minute information needed for both physical and financial control of the inventory situation according to the major inventory classifications and in respect to individual items.

PUBLIC UTILITY PURCHASING AGENTS IN CONFERENCE AT CHICAGO

Two-day meeting focuses attention on availability of materials, pricing and purchasing policies in today's markets

The sixteenth annual Midwinter Conference of the Public Utility Buyers' Group, National Association of Purchasing Agents, was held at the Edgewater Beach Hotel, Chicago, on February 10th and 11th, with approximately 200 buyers in attendance, representing all phases of the utility industry and wide geographical range. Keyed to current problems of procurement, the program dealt with practical and specific phases of the availability of materials, price policies, inventory control, and future trends in buying, with a lively question and answer forum at the concluding session providing the means for a stimulating interchange of opinion and experience.

R. W. T. Purchas, Supervisor of Purchasing, Middle West Service Company, Chicago, presided at the opening session on Monday morning, and welcomed the delegates to the city. The conference was called to order by N. C. Stirewalt, Purchasing and Stores Agent of the Central Illinois Public Service Company, Springfield, Illinois, Chairman of the Group.

Speakers at Opening Session

Speakers at this session were J. R. MacDonald, Vice President of the General Cable Corporation, New York, and J. W. Owings, Assistant Manager of Tubular Sales, The Youngstown Sheet & Tube Company, Youngstown, Ohio. They discussed the production, availability, and future outlook on wire, cable, and pipe. All of these products are likely to be in short supply for some months to come, though production schedules have been stepped up and every effort is being made to meet the accumulated demand and present large requirements. In the wire and cable industry, shortage of copper is a major hurdle to be overcome. If the tariff barrier were lowered, so that im-

ports of copper became available on a larger scale in this country, the situation would be considerably relieved, but the outlook in any case is for a continuation of present high prices. Mr. Owings discounted the general belief that abnormally large quantities of tubular products are going into the export market, and stressed the point that the industry is eager to direct its efforts toward satisfying the urgent domestic demand.

Following the discussion of these papers, M. M. Kenneally of the Joslyn Manufacturing and Supply Company presented a comprehensive report on electric distribution and transmission materials-poles, crossarms, pole line hardware, insulators, and transformers. This report had been prepared jointly with T. H. Schaffer of the same com-pany, who shared the platform in the ensuing discussion period. It was based on an extensive survey in which many producer and sup-plier companies had participated, so as to present a complete and thoroughly representative picture of conditions in this important field. This paper is printed in detail elsewhere in this issue. The general conclusions of the study point to substantially increased production in 1947, but with continuing shortages still in prospect. The result of this situation will be the postponement of marginal projects and high-cost extensions, greater care in planning, more rational purchasing policies, and special attention to maintaining well balanced supply programs.

Spotlight on Price

At the Monday afternoon session, the conference turned its attention to pricing policies, particularly to escalator or price adjustment clauses which are an important factor in purchases of major equipment on which construction and delivery schedules run many months into the future so that uncertainties of costs affect the calculations of both manufacturer and buyer. The presiding officer at this session was R. V. Stephens, Purchasing Agent of the Public Service Company of Oklahoma, Tulsa. He introduced as the principal speakers on this subject: R. C. Sogge, Assistant Manager of the Central Station Division, General Electric Company, Schenectady, and R. M. Mosier of the Babcock & Wilcox Company, New York, who presented the manufacturer's viewpoint. Discussion was initiated by a statement by A. C. Bull, General Purchasing Engineer of the Public Utility Engineering & Service Corporation, Chicago.

Questions came from the audience in rapid-fire fashion, chiefly directed to Mr. Sogge. Consensus among the purchasing group seemed to be that firm pricing should be possible on specific orders for equip-

Chairman Stirewalt opens the Conference



ment, or that limited escalation provisions should be accepted applying to specific cost elements. Resistance to the broader types of escalator clauses is becoming increasingly strong. In general markets the trend is away from this pricing policy, and it was pointed out that firm selling prices are the strongest argument for insisting on firm prices in buying, where a large part of the need for adjustment clauses arises. Buyers feel that the "blank check" pricing of their orders removes much of the incentive for efficient and economical manufacture and procurement on the part of the manufacturer.

Mr. Sogge explained the difficulty, expense, and impracticability of maintaining individual cost records as required under this suggested procedure, as compared with the policy of overall cost accounting on a line of equipment. He contended that the necessity of including a safe margin for contingencies would result disadvantageously to the buyer in respect to costs. The probable effects of declining raw material markets on equipment contract prices was discussed at some length. No general agreement was reached, but the situation was considerably clarified by this frank discussion and presentation of both sides of the argument. The papers by Mr. Sogge and Mr. Bull are printed elsewhere in this issue.

Frederick M. Carlson, Economist for Dresser Industries, Inc., of

Ohio, presented a Cleveland, thoughtful analysis of the government's role in a free enterprise economy, urging a second fiscal policy and a curb on regulatory legislation so that industry may be free to work out its problems with fairness to all concerned and to the advantages of the nation as a whole. He pointed out the steps necessary for the accomplishment of this aim, and called upon all believers in the free enterprise system to support its principles aggressively. His remarks are reported in detail in a separate article.

Cocktails for Two Hundred

The lighter side of a conference program that was primarily a serious busines gathering, came in the form of a cocktail hour and general get together in the West Lounge of the hotel on Monday evening. This was followed by dinner and a floor show in the Marine Dining Room, where the choice tables had been reserved for the conference delegates and their ladies. No formal program was scheduled for this dinner session.

Inventory Problems

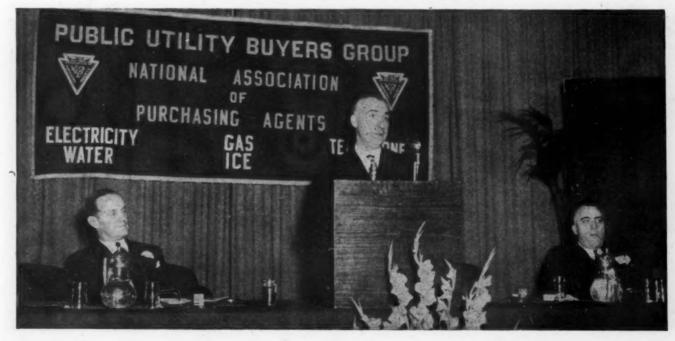
Stephen J. Kennedy, Purchasing Agent of the Springfield (Mass.) Gas Light Company, presided at the Tuesday morning session of the conference.

First speaker at this meeting was H. E. Hodgson, General Storekeeper of the Wisconsin Power & Light Company, who discussed "Inventory Problems." He pointed out the great change that had occurred in the inventory basis of public utility operations by citing the stores record of a representative group of companies. In 1940, a 2-million dollar inventory was required to support annual issues valued at 4 million dollars. In 1946, a 51/4-million dollar inventory was required to support issues of $6\frac{1}{2}$ million dollars. At best, the inventory turnover in this field is less than three times a year, due to the large proportion of "insurance" items that must be carried for uninterrupted service. Thus the problems incident to tying up dollars and materials in stores are greater than ever.

The purchasing department, in order to give effective service in inventory control, must have current data on the market, on the availability of materials and the service that can be expected of suppliers, and on the company's plans for future construction and maintenance programs. It is a situation that calls for the closest sort of cooperation between the purchasing officer and those responsible for planning and engineering.

Shortages, and the lack of balance in inventories, may be due to a variety of reasons beyond actual shortages of material. They may result from inaccurate information or lack of information, from faulty estimates, lack of confidence that leads to over-specifying of needs, or engineering optimism. Some of the

J. R. MacDonald discusses the wire situation (At left: R. W. T. Purchas; at right, N. C. Stirewalt)



factors are beyond the control of the purchasing department, but none

can be ignored.

This calls for a critical look at all requisitions, and at scheduling, and it calls for a tightening up on policies of "cushioning." Most important, it calls for the best possible information regarding deliveries, such information to be disseminated systematically to the appropriate men and departments throughout the organization. Many of the difficulties that arise in respect to materials are traceable to a difference of opinion regarding the availability of materials. There should be a pipe line of information on availability. comparable to the pipe line of materials themselves. This is primarily a responsibility of the purchasing department.

A recent survey of practice in 52 operating companies shows that such information is procured exclusively through the purchasing department, but in only three of these companies is the information regularly furnished to all interested departments as a standard policy.

Sometimes it seems as though information of this sort is as hard to get as are materials. Yet this information should be in the purchasing department, or it should be within their power to get it. Suppliers should be in a position, and under an obligation, to give more specific information regarding their ability to ship. In passing this information along, it should be classified and tabulated, and preferably it should reflect the general situation' in respect to a commodity rather than the report from a single source. If definite information is not available, this fact should be frankly stated, so that the course of action may be charted by using considered judgment instead of a false assumption or mere chance. Too often decisions are predicated on information procured by devious means, from the wrong people, from uncertain sources, and too late.

Government Surplus

Thus coordinated action for effective inventory control is a two-way responsibility, depending on information from purchasing to other departments on the availability of materials, and information from planning and engineering departments to purchasing regarding projects and programs that are contemplated or scheduled.

Paul Williams of the Office of Real Property Division, War As-

sets Administration, Washington, discussed the government's surplus disposal program with particular reference to the interests of public utility buyers. By way of background, he reviewed the magnitude and variety of the surplus problems, and the objectives outlined in the Act under which this property is being sold. These basic objectives are held to transcend the particular regulations governing the mechanics of disposal. This viewpoint is not conducive to a speedy disposal program, but it does protect the public interest. It is significant that the objective of securing a fair value return is last on the list.

In the Real Property Division, there are five major classifications: industrial facilities; airports; institutional (health and educational); urban and rural (for residential or agricultural use); and property management. The disposal of utility facilities and equipment existing at such properties falls into two general categories: for continued operation, and for removal and off-site

use.

Best Method of Disposal

Such facilities are offered for sale in place when they have been declared surplus as government property but are essential to the peacetime use of the property. Sometimes they are necessary during the demolition of a property, to provide water service and fire protection. Field studies are made in each individual case to determine the best method of disposal, the requirements of continued use, the reservation of land for right of way, and similar considerations. An appraisal is made of the value in place, less physical depreciation, and this must be completed before the bids are opened.

In sales for off-site use, there is an inspection to determine the best method of disposal, and the most logical grouping of units such as electrical and telephone systems, water lines, sewage lines, and the like. The usual priorities apply, with preference being given to governmental agencies, veterans' housing, small business, and non-profit enterprises, before the materials become available to private buyers. Sale is generally made at the location, all sales being scheduled and listed in advance. In lieu of a question period, Mr. Williams distributed copies of a WAA publication entitled "How to Purchase or Lease Surplus Real Property."

"Future Trends in Purchasing" was the topic of an address by Stuart F. Heinritz, Editor of PURCHASING Magazine. Despite the reports of continuing shortages on utility items that had been given earlier on the program, and conceding that conditions in this transitional marketing stage are highly selective, Mr. Heinritz declared that a "buyers' market" is definitely on the way. The evidence of this is not to be found primarily in the price structure, but in a new insistence on quality, in the vendors' emphasis on service, and in the reappearance of competition.

Trends in Purchasing

In respect to prices, the most important development is the fact that the escalator clause is being abandoned in many contracts and the trend is strongly toward its complete elimination. This has been brought about chiefly through the resistance of purchasing men to such terms, backed by their buying power in an increasingly competitive market. Many purchasing agents are in the position of opposing escalation in their buying, while the sales managers of their own companies still favor escalation in their sales terms. This is not a happy condition, for the company should come into the market, as into court, with clean hands. The elimination of escalation clauses should start as a sales policy. Firm selling prices can be a great force for stabilizing

J. W. Owings explains pipe shortages



not only prices, but the cost and productivity of labor. These benefits are sacrificed in a system which accepts rising costs on the basis that they can be passed along to the

buver.

In a competitive system, prices will be determined in the long run by supply and demand, with competition as the corrective influence, demand will bring out the necessary production to satisfy needs; the buyer will have a choice of sources, and conditions will be such as to enable him to plan ahead. These are characteristics of a buyers' market. In the competitive system, Mr. Heinritz declared, the buyers' market is the normal condition.

To meet these conditions, he counseled patience, for importunate demand at this point would act psychologically to delay the trend toward firm, stable, and reasonable prices which are now promised by the return to competitive selling.

There is little likelihood that this transition will be marked by a spirit of retaliation for real or fancied lack of service on the part of suppliers during the war years. Blacklists are an expensive luxury, and the purchasing job is too big and too important to let personal resentment interfere with the sound conduct of business. On the other hand, good will and cooperation in the past ought to pay off handsomely now, for it is safe to predict that every buyer will have his white list of preferred suppliers.

Other adjustments will be made

in business relationships. One of these is that the responsibility for carrying adequate stocks will be returned to the seller as a part of his service in the competitive period ahead. Other clauses besides the escalator clause need to be cleaned up in contract terms, so that buyer and seller shall each assume their normal share of responsibility.

In the concluding address of the morning session, George A. Renard, Executive Secretary of the N.A. P.A., spoke to the subject "From One P. A. to Another," which has previously been reported in these pages. He pointed out that business indicators and the course of the business cycle both warn us that we may even now be at the peak of the present period of prosperity and that caution should be exercised. A serious depression can be avoided if we can maintain the three essential factors, and with government controls largely eliminated business is on its own responsibility. Two of these factors are present - high employment and high national income. The third factor - high productivity - holds the key to the economic prosperity of the future.

Questions and Answers

Mark B. Covell, Superintendent of Supply Service, Union Electric Company of Missouri, St. Louis, presided at the final session of the conference, on Tuesday afternoon. He presented as the first speaker, R. H. Hargrove, Vice President and General Manager of the United Gas

Pipe Line Company, Shreveport, Louisiana, and President of the American Gas Association. Mr. Hargrove's address on "Purchasing from the Management Viewpont" is presented in full on succeeding pages.

At the conclusion of Mr. Hargrove's remarks, the meeting resolved itself into an "Information Please" forum. Mr. Covell presided, assisted by a panel including C. F. Ogden of The Detroit Edison Company, R. C. Wenz of the Philadelphia Company, J. L. Watson of the Florida Power Corporation, B. R. Newbery of the Lone Star Gas Company, S. F. Heinritz and G. A. Renard. Among the problems raised were the following:

Question: What effect will forward buying, which creates a backlog of orders for vendors, have on the price structure?

Mr. Newbery: Forward buying includes orders placed for probable future use, to protect against probable price advances, and for speculation. Regardless of the motive, such orders naturally tend to push present orders farther back on producers' schedules and to hold prices at a high level. Unless the "water" is squeezed out of speculative orders by cancellation of commitments beyond actual needs, prices will stay up.

Question: How will cancellation of orders in 1947 and 1948 affect market conditions?

Mr. Wenz: No widespread can-

R. M. Mosier presents the manufacturer's viewpoint on pricing policies



S. J. Kennedy presides at the Tuesday morning session



Jerry Watson, cast in the role of an "expert" at the forum session, appears armed with his crystal ball and soothsayer's turban



cellations are anticipated, because of the real demand for utility materials and supplies, and the desire to build up inventories on items which are not yet readily available. We would be better off if such cancellations were made.

Question: Some suppliers who may be currently quoting lower prices than those on existing backlog orders placed some time back with escalator provisions in the contracts, may be reluctant to lower the prices on existing orders, though the buyer is entitled to prices on a level with current commitments. What can the buyer do about this?

Mr. Ogden: This depends largely on the type of escalator clause in the contract. Mr. Sogge has indicated the manufacturer's viewpoint that competitive pricing must prevail and that invoice prices must generally follow the current market. If a buyer is stuck with a higher billing price than the going market, the best procedure is to sit down with the vendor and talk it over. It is better to settle such questions across the table, rather than in court.

Question: Should purchasing agents take the lead in forcing a resumption of firm price quotations? What is the probable date of the return to firm pricing?

Mr. Heinritz: Good purchasing demands firm prices wherever possible, and it is a responsibility of the purchasing officer to work toward this end. In the general industrial market, firm prices should be the rule by the end of the third quarter of 1947. It will be harder to arrive at this situation on major equipment items where a long period must elapse between placing the order and making delivery.

Question: Many sellers are including in quotation and acknowledgment forms that printed conditions of such forms will apply irrespective of conditions on the purchase order. This is a serious situation and tends to take away prerogatives that have generally been considered to belong to the buyer. In other words, it is felt that sellers should raise any question relative to any specific condition of the buyer's order not considered acceptable, rather than submitting an entire new set of conditions to replace those on the buyer's order. What action can the buyer take to combat this practice?

Mr. Renard: This goes back to the fundamentals of contract law. No contract exists without an offer and acceptance, and this applies to the conditions of sale as well as to the price. If the conditions proposed by the seller are not acceptable, they should be negotiated until a satisfactory agreement is reached.

Question: Pine and fir poles treated with a mixture of creosote and some of the present day substitutes are being received in such condition that they are extremely hazardous to handle and are the subject of complaint from linemen. What can we do to correct this condition?

Messrs. Wenz, Watson, Ogden: The first requirement is a proper specification covering the method of pole treatment, enforced by inspection. Close cooperation with the treating companies helps to overcome these difficulties and get more satisfactory deliveries. Experience with the salt treatment has been reasonably good.

Question: What is the situation with regard to availability and ordering policy on poles, weatherproof wire, distribution transformers, watthour meters, porcelain insulators?

Messrs. Covell. Ogden. Wenz: Transformers, meters, insulators, and weatherproof wire are not being offered for 1947 delivery except as provided in quotas. Deliveries on porcelain insulators are being quoted now for 1949, and no forecast can be made regarding possible improvement in this situation. Bookings on weatherproof wire are now being made for 1949 and 1950, so that present orders must take into consideration the construction programs contemplated far in advance; small deliveries occasionally available now are made possible only by cancellations and overruns that provide holes in the production schedule. On poles, orders should be placed only so far ahead as may be necessary to cover the delivery situation and to protect the company's requirements with the source. Pine is a little more readily available now than in recent months, and the situation seems to be improving. Little relief has been afforded by the surplus poles from abandoned Army camps and other government facilities, since practically all of this material has been going to the REA and other governmental agencies. It has contributed to the supply picture to the extent that such demand is not directly in competition with the private buyer.

Question: What is the situation in respect to steel pipe in sizes from 3/4" to 6" for 1947?

Mr. Newbery: The situation is that on your first inquiry the bookings are not yet open, and when you follow through at the stated time they are all sold out. The presumption is that small sizes, produced on very narrow margins or at a loss, are channeled to the producer's own distributors, and that the large tonnage backlogs are converted into the larger sizes. The prospect for relief depends chiefly on whether a slowdown in building activity develops. This seems probable in view of the fact that building costs are too high to be attractive from an investment or rental standpoint.

Question: To what extent are utilities using plastic or composition covered wire and cable in place of yarn braid (TBWP); also weatherproofed aluminum and aluminum meter service cable?

Mr. Wenz: We are experimenting with the use of aluminum wire. So far, we have used it only for service drops. The chief problem is in making the connection. Comment from floor: Our company is also experimenting with this product, and it is too early either to recommend or to condemn it. Our experience is really very limited because the men are reluctant to use it except when the standard copper wire to which they are accustomed is not available. R. E. Shillady: It is highly important for every utility purchasing man to get acquainted with these and similar products, and to make service tests now, looking ahead to the day when some one of these products must be used in place of copper. The plain fact which cannot be permanently avoided is that copper is too valuable a material to be used for line wire.

Question: What do you consider desirable pre-education and/or pre-experience for purchasing department personnel?

Mr. Newbery: For several years we have not been in a position to be very selective on this point, and now that some of our former employees are returning from the service, some of them quite impressed with the military rank and authority that they have attained, we cannot always find a place for them commensurate with the position they believe they should have. In our business, we believe that a purchasing department employee should have a working knowledge of pipe, valves, meter fittings, and warehouse operation. It is desirable that they have at least a "speaking" education.

Question: Please discuss desirable expediting methods. Should expediting be a function of the pur-

chasing department?

Mr. Ogden: The responsibility for expediting definitely belongs in the purchasing department. It is more effective coming from this source, and at the same time tends toward better purchasing. We have found that a telephone call from the buyer is better than a call by an expediter in getting the goods. A. C. Bull: Expediting is just as necessary today as it was in wartime. There is no substitute for having an expediter at the plant to get out the materials. In many cases this method has broken bottlenecks of supply since we have been able to get materials for the manufacturer that enabled him to complete an order for us. It is admitted that this is doing work that the manufacturer ought to do, but it has been successful in getting the goods. Some plants have regulations against admitting expediters, but this is another case where personality counts, and a good expediter will find some way of doing the job. G. H. Cole: Routine expediting is good practice, for it smokes out the situation and brings it to the attention of the buyer in time to do something about it.

Question: Is it wise to have specific visiting hours for salesmen?

Messers. Watson, Newbery No. The open door policy is best, with preferential treatment for out-of-· town callers. Courteous and friendly reception is an important factor in building good will for the company. It is not always possible to see callers immediately on their arrival, but if the buyer is not available, the receptionist should know where he is and when he will return. Nothing creates a worse impression than a long and fruitless wait.

Question: Should rural line construction continue at an accelerated pace in view of the rising material

and labor costs?

Mr. Ogden: This question must be considered just like any other major improvement or extension of service, in terms of the investment

and the potential return.

Question: Seller's acknowledgement of an order includes the statement that "Orders are not subject to cancellation". Before production is started, or during construction, buyer finds it necessary for good cause to cancel the order, but seller refuses to accept the cancellation. To what extent is the buyer protected if he notifies seller of his intention to breach the contract?

Mr. Renard: A booklet on the whole subject of cancellation is now being prepared by Dr. Updegraff, the Association's legal consultant. In general, the courts assume that when a contract is entered into, both parties expect to go through with it. Specific performance, however, is not compelled. If the buyer cannot go through with it, the seller may ask and recover damages for the portion of the contract he has completed up to the time of notification, including expenses and work applied to the contract and a percentage of contemplated profit. But he is not justified in putting any more work into the contract after notification of cancellation by the buyer, and he cannot claim any damages beyond that point.

A brief period of general discussion followed the formal question period. Among the subjects brought up was the cost of tree service in connection with lines in residential areas, experience with the use of fuel oil by various utilities during the recent coal strike, the practicability of combination boiler equipment, and similar problems. Mr. Stirewalt then took the stand and the meeting was adjourned.

Officers and Committee

Officers of the Public Utility Group, whose term continues until the annual convention in June, are: Chairman, N. C. Stirewalt of Central Illinois Service Co., Springfield; Vice Chairmen, Charles F. Wilson of Lone Star Gas Co., Dallas, George H. Cole of Alabama Power Co., Birmingham, and C. F. Ogden of The Detroit Edison Co.; Secretary-Treasurer, R. A. Graves of Kansas City Power & Light Co.

The local convention committee, in charge of the arrangements at Chicago, consisted of R. W. T. Purchas of the Middle West Service Corp., and A. C. Bull of the Public Utility Engineering and Service

Corp.

Information panel for the forum session (Left to right: S. F. Heinritz, C. F. Ogden, R. C. Wenz, M. B. Covell, J. L. Watson, B. R. Newbery, G. A. Renard)



OUTLOOK FOR 1947

ON POLES AND LINE MATERIALS

S INCE a pole line requires many distinct types of materials and because a pole line cannot be completed unless all such materials are on the job, the pole line industry realizes its chief problem is to achieve balanced production. Considering a pole line as a completed item, and that poles, crossarms, hardware, etc., are component parts, production is unbalanced. This was true in 1946 and will continue

through 1947.

Why is production unbalanced? In considering this, it must be borne in mind that a manufacturer or producer has no choice but to accept all orders placed on him as being firm orders. These orders represent a backlog, and a backlog, when compared to production, becomes a shipping schedule. If the backlog is inflated, the shipping schedules are inflated. Generally speaking, all present day backlogs are inflated. The inflation is possibly not intentional, but rather, it is brought about by the fact that there is a "distribution pipeline" be-tween the manufacturer and the consumer, and while the consumer demand might be one thing, this demand becomes greatly inflated by the time it reaches the manufacturer. Orders for actual construction requirements, plus orders for warehouse stocks all along the "pipeline" and plus the ever present possibility of pyramiding of orders leaves a question in the mind of the manufacturer as to whether or not his back order file is "firm". With this idea in mind, let us consider the many types of material required for pole line construction.

Poles - General

Final statistics of pole production and shipments for 1946 have not as yet been compiled by the Western Red Cedar Association or the American Wood-Preservers Association, but from all the figures which are available, it looks like shipments of all species of finished poles in 1946 will exceed shipments made in any year in the history of the pole industry. These large shipments are accounted for by consumer acceptance of species not generally accepted in previous years,

Production is improving, but backlog orders and current demand are higher

Bu M. M. Kenneally and T. H. Schaffer

Joslyn Mfg. and Supply Company

Paper presented at the sixteenth annual Midwinter Conference of the Public Utility Buyers' Group, N.A.P.A., Chicago, Feb. 10,

treatment with preservatives other than creosote, and cooperation in allowing producers to ship poles with a range of classes. If the consumer will continue to cooperate in this manner, shipments for 1947 will be as large as, and possibly larger than, in 1946.

The 1947 total of poles shipped will be controlled by the consumer. The most generally accepted species of poles in recent years have been Southern Yellow Pine and Western Red Cedar. However, certain conditions limit their production, and without your acceptance of conifer species, such as Douglas Fir, Lodgepole Pine and Western Larch, the Industry could not have made such an exceptional record in 1946. To bring out the trend in the acceptance of various species of poles in the past and the present, we cite the statistics shown in

In 1920, creosoted Southern Yellow Pine poles were not in general acceptance. However, even at that early date, they represented about 28% of the poles shipped, whereas, in 1945, they represented 82% of the shipments! While we do not believe that shipments of conifers such as Douglas Fir, Lodgepole Pine and Western Larch will ever assume such proportions as Southern Yellow Pine, it does not seem inconsistent to believe that they too have established themselves and will continue in more general acceptance. Acceptance of these conifers in the future will have considerable bearing on the total numbers of poles shipped.

Southern Yellow Pine

Shipments of this species of pole for 1945 almost equalled the peak year of 1941, and when final figures are available, it is expected that shipments for 1946 will be considerably larger than for 1941. For 1947, it looks like there will be a large production of white poles of this species, and shipment of finished poles will be controlled only by the supply of preservatives and the facilities of treating plants.

The Southern Yellow Pine pole industry had a backlog of 2,000,000 or more poles on order on January 1, 1947 as against an anticipated production of 4,000,000 or more poles for the same year. This seems to indicate that this species of pole is becoming more available, although poles in transmission sizes are going to be in short supply for

Shipments of this specie pole in 1946 are expected to be only about

	Tab	le I		
Poles—Pressu	ire and N	on-Pressure	e Treated	
	1920	1941	1945	1946*
Southern Yellow Pine	167,289	3,670,681	3,459,335	4,315,000
Western Red Cedar		1,162,987	427,773	375,000
Northern White Cedar		153,681	65,357	30,000
Douglas Fir		40,991	132,235	240,000
Lodgepole Pine		15,686	128,424	230,000
Larch and Misc. Conifers			13,662	60,000
Misc.		71,234		
TOTAL	585,781	5,115,260	4,226,786	5,250,000 estimated

32% of the 1941 shipments partly because of the present Canadian embargo on shipment of poles to the United States. This embargo was not in effect in 1941 and about 60% of the poles of this specie that were shipped in that year came from Canada. Therefore, the production in the United States for 1946 was actually 20% less than the production in the United States in 1941

This Canadian embargo restricts shipment of poles to the United States to the extent that for every carload shipped to the United States, one carload must be sold in Canada. This is based on carloads and not on number of poles. Canada needs all of her 30 to 40 foot poles, so, for that reason, the United States has received very few poles from that source. It is expected that this embargo will be lifted some time during 1947 and this will have some effect on total shipments for 1947, but Canadian production will not be a large factor until 1948. It is expected that eventually, when both Canadian and United States production can be used, shipments of this specie will again rise to 700,000 to 750,000 poles per year.

At the end of 1945, there was a "carry-over" of an estimated 350,-000 poles of this specie, but it developed that a lot of these poles were never shipped because other conifer species were substituted. At the end of 1946, we estimate that there is a "carry-over" of 325,-000 poles which may or may not run the same course as the 1945 "carry-over". This makes a large backlog when compared to 1946 shipments, and there is always the problem of making the production fit the orders. The over-all production represents all classes and lengths, whereas the demand is for 30 to 40 foot poles for rural construction and certain longer poles for transmission lines.

Poles - Conifers

Shipments of poles such as Douglas Fir, Lodgepole Pine and Western Larch have increased at a tremendous rate since 1941. Shipments in 1945 were over 4½ times greater than in 1941 and it looks like shipments in 1946 will be almost double those in 1945. Production for 1947 is set up to be even greater than 1946.

From the foregoing information, it seems apparent that these species of poles have gained wide acceptance and if the demand continues, these poles will help the pole indus-

POLE LINE HARDWARE AND ACCESSORIES

- Line Hardware. Production in 1946 was far below capacity, below 1941 volume; also out of balance due to shortages of some component materials. Result: backlog orders on January 1, 1947, were more than double the tonnage of a year earlier. Outlook is for 15% to 20% greater production in 1947, cleaning up backlog orders within 7 or 8 months. Incoming orders during 1947 will regulate shipping schedules for the last 4 to 5 months of the year. Current demand is high.
- Galvanized Strand. This item was one of the most critical during 1946, with deliveries delayed from 4 to 6 months beyond original shipping forecasts. Basic reason for this condition was steel shortage, plus unwillingness of mills to put their production into steel wire. The backlog of orders is tremendous. Deliveries now scheduled for 12 to 18 months in the future; some mills decline to promise any specific shipping date.
- Anchors. Demand throughout the war years exceeded the industry's manufacturing capacity. Demand for malleable products was especially high, but malleable anchor shipments today are less than 15% of the total. Steel anchor capacity has been expanded, 1947 production is expected to be 25% more than in 1946. The pipelines of supply are starting to fill. Anchors will be off the critical list by 1948.
- Copperweld Ground Rods. In spite of strikes and other production difficulties, 1946 set a new high production record, accomplished in about nine months of actual operation. With full production in 1947, shipments should be even higher. Present backlog may be liquidated in ten months.
- Porcelain Insulators. This is the most critical item of all. Delivery promises of most plants at the beginning of 1946 were 8 to 10 months. Enormous volume of orders placed in first nine months extended delivery time to 16 to 20 months. Greatest demand in early months was for distribution items, for housing developments and rural line extensions; in latter half of year, transmission items made up a larger share. Production facilities have been improved; labor shortage of 20% still prevails. Estimated production for 1947 is up 20% over 1946, but promises no substantial shortening of delivery time.
- Transformers. There is wide divergence of opinion among manufacturers concerning 1947 production. Consensus is that this can be the best year ever experienced in the industry, with output up as much as 30%. Backlogs are such that most efficient production can be maintained, and small components—bolts, nuts, wire—are more readily available. Deliveries are still on the long side, but the hardship of this situation is mitigated by the fact that present orders anticipate normal requirements by one to two years. Production is being concentrated on standard units in popular ratings, and buyers willing to dispense with special details of taps, bushings, outlets, connectors, brackets, etc., are faring best on deliveries.

try set a new record in total shipments for 1947.

Summary

Based on best available figures for 1947, we arrive at an approximate required quantity of poles of 6,435,630.

This includes:

1,237,000 poles for utility rural lines

1,000,000 poles for utility replacements 198,630 poles for utility transmission

1,000,000 poles for telephone and telegraph use

3,000,000 poles for Rural Electrification Administration.

On the basis of a production 10% above 1946 estimated figures or 5,775,000 poles, we will still be short about 660,000 poles for 1947.

One of the bottle-necks in production of poles that required pressure treatment during 1946 was treating facilities. This situation is

improving.

Seventeen pressure creosoting plants were built or put under construction in 1946. Of these seventeen, we know definitely some of them are already in operation and others are scheduled to be operating the first half of this year. We do not know the cylinder sizes in all these plants, but of those with which we are familiar and using the average of their figures for the entire seventeen, they will produce 13.1% increase in cylinder capacity over the industry capacity for 1941.

Thhe new treating facilities would not, of course, all be used for treatment of poles, but at least in the be increased capacity for pressure over-all picture, there is going to

There was a shortage of creosote all during the year of 1946 but preservatives such as creosote in mixtures with other preservatives, pentachlorophenol and copper naphthenate came to the front and helped to keep up the production

of treated poles.

In 1941, the production of coal tar creosote was approximately 215,000,000 gallons, of which 9% was imported. The 1944 production was 189,000,000 gallons and the 1945 production, 225,000,000 gallons, all of which was domestic production as there were no imports during these years. These figures develop the fact that the 1945 domestic production was 10,-000,000 gallons greater than the combined domestic production and imports consumed in 1941, but still, there was a shortage.

In spite of steel and coal strikes in 1946, it is expected that the final figures will show that the domestic production of creosote has increased 10% or a 1946 production of about 248,000,000 gallons. During 1946, we imported about 1,000,000 gallons of creosote and while this is a small quantity as compared to our own production, it is an indication that foreign produced creosote will again be available.

1947 domestic production of creosote is expected to be about 260,-000,000 gallons but the number of gallons which can be imported is only a guess. If, however, imports reached 5,000,000 gallons, we would have 265,000,000 gallons available for treating purposes in 1947 or about 20% more than we had in

This does not mean that there is going to be an ample supply of creosote for 1947. The figures we have given you are based on total available supply and do not represent the amount which will be available

for treatment of poles.

During 1946, the use of preservatives other than creosote was developed on a large scale. Probably, the most widely used preservative in this class is pentachlorophenol. Briefly, this preservative has been used for some years, starting out first in the mill-work trade for dipping sashes, window frames, etc. Its use in pressure treating was first started about 1935 and since that time, it has gained general acceptance for both pressure and open tank treating. This preservative is a manufactured product which is made in the form of crystals and is dissolved in a carrier, which is usually petroleum, to a normal extent of 5% of pentachlorophenol and 95% carrier. 1946 production is estimated at 20,000,000 gallons of this solution and 1947 production is expected to triple 1946 production and give us 60,000,000 gallons of solution for treating.

Another preservative used to some extent in 1946 was copper naphthenate, which is also manufactured and is dissolved in a petroleum carrier. No reliable estimates are available for 1946 production but our guess is that 3,000,000 gallons of copper naphthenate solution were produced or about 15% as much as pentachlorophenol. There is no estimate for 1947 production but it is reasonable to expect that production can be increased if there

is an increased demand.

Shipments of Douglas Fir Crossarms from all crossarms factories in 1946 were 50% greater than in

1945. This percentage of increase was on distribution sizes primarily and does not reflect in transmission sizes to any great extent. This is a record and is based on board feet shipped, not on dollar volume. The industry is still faced with a tremendous backlog.

Based on January 1, 1947 backlogs, it will take the entire capacity of the West Coast mills a year and a half to fill the orders now on file. Factories in other parts of the country can usually make shipments in 60 to 90 days provided lumber of

the right size is available.

All crossarm factories are apparently running to capacity today but the problem for 1947 is going to be an adequate supply of lumber. During the days of O.P.A., prices for crossarm grade lumber were favorable and lumber mills would accept and ship orders, but today, with O.P.A. no longer in the picture, the lumber mills are taking orders only for lumber or logs that will bring

them the most money.

The biggest competitor that the crossarm industry has today in the purchase of raw material are companies which make veneer. The board footage of veneer that goes into a product is relatively small but the demand for the product is large so the veneer companies apparently have no regard for the price they pay for logs. It so happens that a log that will make veneer will also make lumber for clear grade crossarms but the veneer companies will pay about 70% of the lumber price just to get the logs. The lumber companies sell the logs because they can't make it into lumber for only 30% more money. We believe that the crossarm industry could increase their supply of lumber if they wanted to compete with other industries in the purchase of raw material, but this would sky-rocket the pirice of finished crossarms

One bright spot in the 1947 picture is the fact that boats from the West Coast are again in operation and some lumber companies are located in spots where it is more economical to load boats than it is cars. During 1947, it is expected that these companies will increase their production of crossarm grade lumber and ship by boat instead of rail. This, of course, will help production of crossarm factories on the East Coast. Another bright spot from the customer's viewpoint is the fact that two new crossarm factories on the West Coast were put in operation during 1946 and if they can obtain lumber, they will be a factor in reducing the backlog.



Good purchasing performance is more than a matter of dollars and cents; there are other opportunities of equal importance in promoting efficient company operation for present and future business success

By R. H. Hargrove

Vice President and General Manager, United Gas Pipe Line Company Shreveport, Louisiana

President, American Gas Association

Purchasing

FROM THE MANAGEMENT VIEWPOINT

In the past twenty-five years, the field known as "purchasing" or "procurement" has evolved from a rather hit-or-miss proposition to a highly specialized science. Management first began to recognize the tremendous economic importance of correct purchasing shortly after World War I, and its importance has so grown in the minds of management that, in World War II, the Purchasing Agent ascended to an executive plane.

Now that the war is over, the administrative level of business has conceded that the procurement problems to be met in peacetime are of equal importance, even though of a different character, with those faced during the war. Management has wisely acknowledged that any department which supervises the outlay of an amount of money which represents a goodly portion of the total expenditure of the organization must, of necessity, assume its proper important role in the workings of that organization.

It has been established by the United States Bureau of Census that in industry as a whole, 54.7% of the total outlay of money was repre-

sented by purchases of material necessary to carry on the operations of the business. This has been one of the greatest contributing factors in the establishment of the purchasing department where it should be in the eyes of management.

Profit and Loss

In looking at this business of purchasing through the eyes of management, one must first of all regard this department from the angle which is always uppermost in the minds of good executives—dollars and cents—profit and loss. Let us consider briefly how correct purchasing plays a most important part in this business of money making.

Primarily, we must recognize the self-evident fact that the handling of procurement by a highly trained man, or men, takes a tremendous responsibilty from the hands of executives and permits them to devote their times to other duties. Conversely, it removes the very dangerous authority or responsibility from the unskilled employee, who may know his or her particular work well, but who knows little or nothing of the fine points of purchasing.

From the first angle, it saves the valuable time of the executives, and from the second angle it saves needless waste of money which has been placed in the hands of men who can buy but who cannot purchase.

Know-How in Purchasing

The difference between buying and purchasing, I'm sure, is evident. Buying is the mere giving of an order for material which is needed, or which is thought to be needed. Purchasing, on a much broader scale, is the analysis of the requirements of the company as a whole and the concomitant negotiation with vendors. In the analysis of the requirements of a company, the Purchasing Agent looks far into the future. He is not thinking of the company's operation of today or tomorrow; he is thinking of it a month or six months hence.

He must acquaint himself with the availability of material, the delivery of material, and also the present stocks of material in his own warehouses.

He must have more than a nod-

Address at the sixteenth annual Midwinter Conference of the Public Utility Buyers' Group, N.A.P.A., Chicago, February 11, 1947. ding acquaintance with market trends, so that his investment of money in materials will prove a sound investment and not one in which the company loses money.

He must be able to translate the current and future conditions of the country, the market, and business in general, to meet his company's needs

He must study the operations of his company as a whole, and be ready to suggest to management the standardization of certain phases of operation which will save money in a long range purchasing program.

He must be the coordinator between the various departments of the company in terms of the raw materials or maintenance materials used. He must play such an important role in this coordination that no major project should be entered into without the purchaser's advice.

The purchasing department, if handled correctly, should be so well versed in the economic conditions of the country that it can be of valuable assistance to a sales or financial department.

It should be so well acquainted with the economic structure of its own organization that it should be the first to suggest the manufacture of certain materials by its own plant which heretofore had been purchased from the outside.

These, and many more, factors constitute the analysis of the requirements of a company.

Vendor Relations

From the standpoint of negotiation with vendors, many people interpret this to mean nothing more than trading for price. It is, in part, the negotiation for proper price; but in these days prices, to a certain extent, are standardized by universal price lists, and negotiation therefore means a lot more than trading. A good Purchasing Agent can negotiate with the vendor for minor changes in specifications which could either lower the price or make the material more suitable to his use. He can experiment with alternate goods at lower price levels which will still coincide with the standards set up through the policy of his company. This phase of purchasing might also be said to include the negotiation for proper delivery so as not to interrupt the operations of production.

All of the above considerations constitute some of the phases of correct purchasing, which are viewed through the eyes of management with the thought of profit and

loss in mind. No one can deny, nor can there be much argument, that management looks to the purchasing department first of all to save them money, and it can easily be seen that a correctly coordinated purchasing force can do this.

Mutual Benefit

Now that I have discussed purchasing from the angle of saving in cost of materials bought, I should like to point out that there are times, however, when the importance of price is secondary to other considerations. By this I do not mean to imply that any manufacturer or group of manufacturers should be subsidized by favorable price contracts. What I have in mind is twofold:

First, insofar as practicable, purchases should be made in the particular territory in which the particular company operates, even though this may require modest price concessions. This reasoning springs not from altruism, but from the very practical logic that the general betterment in business conditions in the territory in which the company operates will more than offset any initial price saving and will eventually permit equalization of pricing.

The second illustration I have in mind goes to the question of encouraging manufacturers to improve the quality of their product by rewarding them with a price differential consistent with such improvement in order to stimulate further action along the same lines. Appropriate price concessions can also be justified to encourage advertising and merchandising activities when they are of mutual benefit to the buyer and seller. Particularly in highly competitive industries is this of more than passing importance.

Information, Please

Along with current profit and loss, management looks to progress. It is realized that the current profits of their company will last only so long as they stay abreast of the times, and that their present profits can be increased if they step ahead of the rest of the field with innovations in service or products. The purchasing department has perhaps more connection with outside sources of supply than any other group in the organization. If it is on its toes, it has kept itself well informed on present and new methods of production, so that by coordinating and assimilating this

information it can suggest new and improved methods within its own organization.

If the Purchasing Agent knows the material that he buys, he knows more than the salesman who sells it to him. He should glean from his acquaintances in the trade every speck of useful information which should be passed on to the engineering or production department for their perusal and decision. The Purchasing Agent should know more about outside methods of manufacture and production than any other one man in the company because he has much more contact with the sources of information. Viewed through the eyes of management he is in a strategic position to collect and screen and weigh this information with the progress of the company in mind at all times.

Business Reputation

No sales department, nor sales force, can function well unless previous groundwork has been done in public relations. The name of the company must first be sold; its integrity must first be established before any product can be sold. In many organizations, the purchasing department comes in contact with more outside people than any other department in the company. It is responsible, to a large extent, for the company's reputation in the business world. Salesmen who call on a Purchasing Agent can very easily become advertising agents for that same company by spreading either good or bad information about the

Since the purchasing department, in many cases, acts as the legal agent in committing the company to various contractual obligations, the integrity of the company is to a large extent in the Purchasing Agent's hands. It is in a strategic position to develop and maintain the good will of business firms who may be actual or potential customers. By the intelligent handling of reciprocal business, it can place the company on a very firm footing in the business world, or on the other hand, it can do irreparable damage. Through the eyes of management, the purchasing department from this angle becomes a very important salesman,

I have endeavored here to cover a few of the main points or phases of a purchasing department which have been recognized by management as being vitally necessary to

(Please turn to page 361)

POLICIES OF PRICING AND PAYMENT

The manufacturer's viewpoint on practicable means of doing business under conditions of uncertain costs and long production periods

By R. C. Sogge

Assistant Manager Central Station Divisions General Electric Company Schenectady, N. Y.



"It may be that we manufacturers have done too good a job in our anxiety to look out for your interests as purchasers" — R. C. Sogge.

A S a general proposition, I think manufacturers expect to be paid for quantity-produced items, such as motors, control, distribution transformers, and watthour meters when they are sold, and to purchasers who have a credit rating this is expressed as 100% cash within 30 days from date of shipment. On what we call heavy equipment, if the value of the order is less than \$50,000, the terms are the same.

If the value of the order is above \$50,000 and the production period is less than six months, our standard terms are 50% cash at time of shipment, 40% cash within 30 days from date of shipment, 10% cash within 60 days from date of shipment.

On the large apparatus where the order is for \$100,000 or more and where the production period is six months or longer, our standard terms are at least 50% progressively during the production period.

Payments of such part of the purchase price as is not covered by progressive payments shall be made —50% cash at time of shipment, 40% cash within 30 days from date of shipment, and 10% cash within 60 days from date of shipment.

Progressive Payments

Progressive terms are what we call "standard terms" where an order involves \$100,000 or more and the production period (as distinguished from the shipment estimate) is six months or longer; also we state that the progressive payments are to be spread out over the production period, that is, where production is from six to eight months, the payments are to be at the rate of 10% a month for at least five months starting from the estimated date on which production is to start; where the production period is longer than eight months, that the payments be on a monthly or bi-monthly basis starting at the date when we contemplate commencing production and continuing on a periodical basis, with the aim of getting at least 50% progressively by the scheduled date of shipment. Also, I might explain that variations of these terms of payment can be arranged to meet the customer's economic problem, to permit the skipping of certain months where the customer expects a heavy cash drain for the payment of bond interest, taxes, etc., as well as variable percentages to fit in with the customer's cash forecast.

The principal reason behind progressive payments is that the manufacturer of large equipment is in the same category as the contractor who constructs buildings, bridges, or anything else which requires a comparatively long construction

Address at the sixteenth annual Midwinter Conference of the Public Utility Buyers' Group, N.A.P.A., Chicago, February 10, 1947.

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Presiding at the session on pricing policies — R. V. Stephens of Tulsa.

time. It would be impossible for such a manufacturer to determine how much capital he should have to finance long-term production when a majority of his customers are in the market at the same time.

Currently, most of our customers are in the market at the same time for large equipment, and this condition is likely to continue and increase for several years. In this same period our cash needs will be heavy to finance the expansion of our plants and the carrying of large inventories which are frequently over-expanded because of the unbalance. You have undoubtedly read in the financial papers that it has been necessary for us to go out and borrow money in order to carry on our operations, and the need for such borrowing may increase. This is not peculiar to our situation, but practically all large manufacturing companies have borrowed heavily for working capital purposes. There obviously is a limit to every manufacturing company's borrowing capacity. This limit will be affected by the manner in which business is managed, and right now terms of payment are an important element in management. Progressive payment terms will be required more and more by well-managed companies. The cost of adequate financing is a part of the cost of doing business and, as such, is bound to be reflected in prices.

Price Revision Clauses—What are they? As I understand the term, a price revision clause is a provision in a quotation or contract whereby the price is subject to be increased or decreased to provide

for occurrence of subsequent contingencies outside of the control of either of the contracting parties. The idea has been expressed in any number of different ways over the past several years. We have had a limited price protection policy on distribution transformers, watthour meters, motors and control, for more than ten years. For a long time some of the important materials we have had to buy have been on the basis of market price in the quarter during which shipment is made or on the basis of an understanding that the prices will be subject to review at the time of shipment, if there has been a change in the market conditions.

As recently as last November 17, 1946, we issued a revised statement of the price policy on Apparatus Department lines for our sales organization which reads in part as follows:

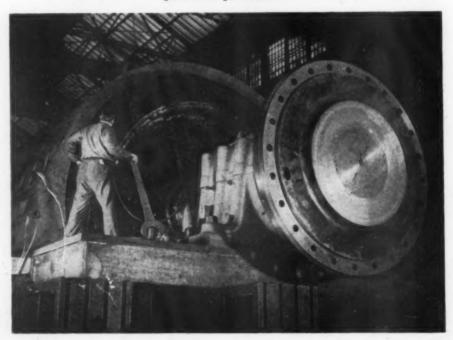
"A. Superseding previous Commercial and all Product Division Instructions, and effective immediately, the Company's price policy on all Apparatus Department quotations, orders and contracts is the Company's price in effect at time of shipment. The Price Adjustment Clause, Form 13003-4, is hereby withdrawn."

Perhaps we should review why we have found it necessary to adopt this price policy. V-J Day found the Company with substantial peacetime orders on the books at 1941 prices, or lower. The pent-up demand for electrical apparatus to meet the long deferred requirements provided new orders at an increasing rate, while shortage of manpower and shortage of materials increased the backlog of unfilled orders. Contrary to some expectations. after V-J Day business continued at a rate high enough to create labor shortages, which contributed to a further increase in wage rates. Important materials which we needed in our business began to rise in price and these cost increases were further compounded by the inability to increase production efficiency. Under these conditions, the only solution to the price problem seemed to be for the Company either to refuse orders where shipments could not be made within a reasonable time, or to make sales at open prices. Since the fall of 1945, we have had a number of different methods by which our price policy has been stated, and at the time each one seemed to best satisfy the conditions.

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As you know, on some lines we tried out a plan in which the new price became effective after stated protection periods, such as 90 days after date of a price increase, or 180 days, and the selection of this period was dependent upon the length of the normal manufacturing cycle. That seemed quite sensible at one time, but then some of our perfectionists carried this idea still further and picked additional periods of 30 days, 60 days, 120 days, and one line of product was sold on the basis of the old price being firm

Large apparatus may require six months or longer in the actual process of production.



for an amount of new business equal to 1/6th of the amount of business placed the previous year. We soon found that our attempts to be logical on each line only led to utter confusion, and we had to sacrifice some of the logic for simplicity and uniformity if we ever hoped to keep our operations straight.

When shipping schedules became abnormally long on our heavy apparatus, we also had the Price Adjustment Clause or Escalator form, with certain percentages of the contract based on labor and material index figures furnished by the De-

partment of Labor.

That method had a lot of merit. The figures on which the adjustment was based were from a public source, each party to do his own guessing as to what the numbers would show, and the results were an arithmetical calculation. But even that method was subject to criticism from a number of angles. It took too much bookkeeping. In our Company every order with an Escalator had to be handled on a special contract routine. The index figures were anywhere from 40 to 60 days late. It was reported that some purchasers did not have confidence in the index figures. Many purchasers felt the urge to propose a different set of index figures. Some wanted to apply the index figures to different percentages of the contract price. Some insisted that there ought to be a "\$50 deductible" like they had on automobile collision insurance.

As shipment schedules became longer, the averaging of the index figures became more and more inadequate from the standpoint of measurement of the cost increase on the particular contract. And as a "final straw which broke the camel's back", some purchasers wanted a further provision to the effect that the escalated price would in no event be higher than price in effect at time of shipment.

The net result of all this "jockeying around" was to cause us to abandon the Price Adjustment or Escalator form based on index figures. It could not be applied to all orders, and we did not want two methods of Price Protection because some one always felt that the other method was preferable.

Possible Operating Plans

It might be well to consider possible operating plans under today's conditions. There are three alternatives:

1. Refuse to accept long-term commitments.

Increase price levels now to a point where it would be reasonably certain that future increased costs of material and labor are covered.

3. Use present price levels with price in effect at time of ship-

ment.

Under today's conditions, refusal to accept long commitments would limit the customer's ability to do advance planning. Further, these commitments are one of our best yardsticks in planning manufacturing facilities, material commitments and production. To best serve customers, we must produce only needed items. The stock piles of raw materials and finished product which we normally have when supply and demand more nearly balance are no longer available to serve as a flywheel.

To advance prices sufficiently to guard against possible future increases in cost would mean substantial increases which might not later be warranted. It would further mean that where items can be made immediately available, the customer would pay excessively high prices. Through the avoidance of high forward pricing, inflationary effects are kept to a minimum.

Of all the plans considered, the one which seemed most sensible for both the present and the long range viewpoint is to use present price levels with provision for adjustment to price in effect at time of shipment, if there is a change in the market price.

Effect of Adjusted Prices

Let's appraise what price in effect at time of shipment does for the customer and for the manufacturer:

It permits the customer to make advance commitments, makes it possible for him to plan, and assures him of a fair share of available production capacity.

The customer pays only the going price for the materials at the time he receives and uses them. In normal times he would place his order for such materials later and as required, and pay the going price without question.

The customer makes it possible through his advance firm commitment for the manufacturer to plan his facilities, commitments and production in a way to secure maximum output of needed items only at lowest cost.

The customer gets the benefit of any economies that can be effected subsequent to placing his order.

If we keep in mind that we are trying to find a means by which we can do business sensibly under what we think of as "abnormal conditions"—

shipping schedules reaching into 1950, materials in short supply facilities crowded, impending increases in costs, work interruptions, etc.,

Today's production is applied against orders placed months ago under very different market conditions.



then buying and selling at market prices as of time of shipment is not too bad.

When we say price in effect at time of shipment, we think of that as the market price at time of shipment. In most cases, it is also the published price, and experience shows it is a competitive price. On those items which do not have a published price, the adjustment up or down will be by the same percentage change that was made on

that particular line.

I can sympathize with the problems which buyers have as a result of this method of operation. Dealing with numerous suppliers, your difficulties are multiplied many times. We have 56 different lines of product manufactured by the Apparatus Department of my company. We have had a most difficult time in trying to accomplish some degree of uniformity so that our quotations would make sense when presented to the different customers with whom we do business. Business has been conducted with this handicap for more than a year now, and it is pertinent that we inquire into the results.

At this time I wish to express our appreciation for the cooperation you have given. I know that in some cases it was not exactly wholehearted, but you had to get orders placed and you did not know of any better way of doing it. For the most part it has worked with reasonable success, and in my judgment it has worked to the benefit of the electrical equipment buyers. A recent investigation in our Company discloses that weighted prices on electrical apparatus have risen only 25% in the face of a 50% rise in wages since 1940. It may be that we manufacturers have done too good a job in our anxiety to look out for your interests as purchasers, because electrical manufacturers do not have much profit to report to you as stockholders. It will be conceded by any businessman that any business must make a profit if it is to produce successfully the orders on the books and satisfy you as purchasers, this being a requisite of any going concern worthy of the name.

Of course the increased costs are not solely increases in wage rates. The materials we used have gone

up some, but there is more than that. In 1946 we manufactured more electrical apparatus than we did in any other peacetime year, but many essential materials were in short supply, inventories were badly unbalanced, substitutions were costly, expediting scarce materials added to the cost and lengthened the time the apparatus had to be in the factory. Production per man-hour was down substantially. The emphasis was on getting things manufactured and shipped, particularly getting something needed to complete a project. Under these circumstances we were not able to get the benefit of technological advances, and real progress toward standardization had to be sacrificed in many instances to build what we could. This also is not unique with our Company but is general with all manufacturers.

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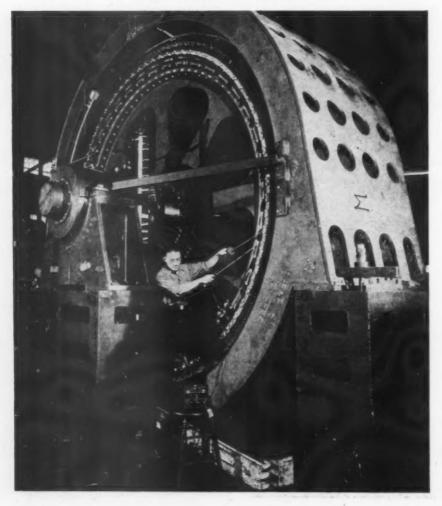
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1947 looks hopeful. The events of the next six months may be significant. The wage pattern may be a lot clearer than it is today. The shortage of materials, principally iron, steel, and copper, contribute to cost uncertainties. The world price of copper is now higher than the domestic price, and there is a four cents per pound import duty. If industry's requirements for copper force substantial purchases from abroad, it is easy to see that the domestic price will soon move up to the same level. We would like at least to try uninterrupted operation for some reasonable period of time with a sufficient supply of raw materials, and we think the increased production will go a long way toward giving stability to pricing within the electrical industry.

It is too early to go to firm prices right now because of the situation I have described, but at the same time I know that we in our Company are exceedingly anxious to get back to firm prices. I can assure you that as soon as economic conditions will possibly permit we will do so. I am sure too that electrical manufacturers are looking forward eagerly not only to firm prices but to the time when we can again make price reductions. You can be assured that "more goods for more people at less cost" applies just as strongly as it ever did and will motivate us constantly.

We are asking for and need your full co-operation and confidence in the price policy being used. I think the results obtained to date have been to your advantage and the objectives to be attained through continued co-operation are worthy of our best efforts.

Purchases and terms of sale on major units of equipment require special consideration.



THE BUYER LOOKS AT ESCALATION

· By A. C. Bull

General Purchasing Engineer
Public Utility Engineering & Service Corp., Chicago

D URING the war period, due to the uncertainty connected with having the Government as the principal buyer of their products, the manufacturers rightfully demanded cost-plus pricing and progressive terms of payment. Now they have returned to their normal occupation of selling established lines of products to their regular customers. Therefore, the continuation of price escalation and progressive terms of payment appears to the customer as a severe hangover from the war production jag rather than a well thought out general business policy. True, the aftermath of OPA following the cessation of hostilities did not make for clear thinking.

The individual salesman is not any more enthusiastic over these two innovations than is the buyer. He first excused escalation by explaining that the clauses did not mean anything because OPA set the ceilings. Now his explanation is that his company has lost all control over its cost. This, of course, is a natural outcome when all manufacturers have adopted price escalation.

The quotation he is submitting is the best estimate his company can make of the cost and profit of his company as of this date. However, the customer must assume the burden of all increases in these costs beyond the control of his company. Of course, should there be a decrease in these costs, the customer is to get the benefit. How many escalation clauses, as offered to the trade, say this? "Price as of date of shipment" certainly does not.

This clause has many fatal attractions from the selling side. It is snappy—almost a slogan. The legal department does not have to rewrite it while the market trend is up, although in the last few weeks there has been an unheralded tendency for the phrase to become "The corporation's prices as of date of shipment." Finally, the accounting department will approve it as least burdensome to them. It certainly calls for no effort on the part of production management to control

costs. How will "Price as of date of shipment" hold up in a severely declining market?

Why doesn't the buyer agree to go cheerfully along with these simplified and streamlined methods of procurement? The plant accounts of all public utilities have been under active investigation by the various regulatory commissions for the past 25 years. Every public utility buyer must be prepared to take the witness chair at any time and justify that any and all orders and contracts placed, however long ago, were handled with sound business judgment and to the best interests of the customers of the utility. Several years from now it will be difficult to satisfactorily recreate the present hysterical business policies by merely singing for the cross-examining attorney the refrain of the old song, "Everybody's doing

The following escalation clause has been presented to the trade as a substitution for "Price as of date of shipment". It reads:

"The prices herein shall be subject to increase or decrease to cover any changes in material or labor costs, or both, from those prevailing at the date of this order to those effective when the material is shipped, but only to the extent that these cost changes may have affected the manufacturer's total expense in furnishing the materials called for in this order. In no case shall the price increase or decrease exceed——%."

Many firms, both large and small. have accepted this clause. However, it has been flatly rejected by the two leading manufacturers of electrical apparatus. The reason has been given as "impracticable of application" or that they could not trust all of their customers with such a clause. They are now insisting on "The corporation's prices in effect at time of shipment." However, regardless of management's desire to avoid trouble on their part, their salesmen can advise them that every transaction involving an escalator clause will eventually be subject to individual negotiation, especially if invoiced in a falling market.

The financing of his business has always been just as much a function

of the manufacturer as the production of his product. Public utilities are built out of borrowed capital, because governmental restrictions will not allow sufficient earnings for such purposes. Their financing is strictly controlled by and reported to the SEC. For these reasons, progressive terms of payment are especially objectionable to public utilities and an expensive method of financing. A manufacturer with a triple A financial and manufactur-

(Please turn to page 361)

Paper presented in discussion of Mr. Sogge's address on "Policies of Pricing and Payment" at the sixteenth annual Midwinter Conference of the Public Utility Buyers' Group, N.A.P.A., Chicago, February 10, 1947.



GOVERNMENT'S ROLE IN A FREE ENTERPRISE ECONOMY

• By F. M. Carlson

Economist, Dresser Industries, Inc., Cleveland

Incentives and opportunity for all — including the employer and investor — and freedom from undue governmental regulation are essential for continuing progress in the American way of life.

THE capitalistic free enterprise economy which we know—or perhaps I should say, which we knew—is being challenged in every corner of the world. The American way of individual initiative, fostered and nurtured by a competitive spirit that has raised this country and its people to the highest standard of living in the world, is threatened on all sides by ideologies which aim for the subjugation of the liberties of the individual to the growing power of the state.

Call them what you will — nationalization, collectivism, socialism, communism or any other name — they abound in and dominate Europe and Asia. Their influence is being felt in this country, in South America and in Canada. With our furthest neighbor but 60 air hours away, we in the United States cannot afford to ignore or minimize the implication which these various doctrines contain as a threat to our way of life. Indeed, unless we reaffirm our faith in free enterprise by word and deed, we shall be forced to sacrifice all or a portion of our capitalistic system, if only by default.

American industry, which for so many years remained aloof from the American people, either through arrogance or ignorance, has for the past fifteen years done a most remarkable job of hiding its light under a bushel. Its enemies, on the other hand, have waxed eloquent and have made serious inroads on the thinking of the American people who have come to lay their past economic ills directly on the threshold of business and that currently maligned and much misunderstood doctrine of free enterprise.

It is vital, therefore, that we who believe in free enterprise become aware of the threats to our way of life. We must analyze carefully the position in which we find ourselves; we must establish a constructive and aggressive program for postwar America; we must pursue this program with a courage and an effort based upon the conviction that free enterprise still is the only means whereby the individual and society can obtain for themselves a maximum material and spiritual reward.

Freedom Is the Keystone

One basic idea stands out above all others in any discussion of a competitive capitalism. That idea is in reality the keystone of our society. It is freedom-freedom to work as we choose, freedom to compete with whom we please, freedom from coercion by any man or group and, most important of all, freedom from undue interference and regulation by government. I submit that government regulation constitutes the most important threat to our economic freedom because inherent in national government, and ours is no exception, is the latent power to control and dominate every phase of our lives. The Constitution was designed to provide a framework for the association together of free men. Too many of us have let the mere framework lull us into a false sense of security. Freedom remains only to those who aggressively pursue and retain their status as a free people.

You are all aware of how easily the Constitution can be bent to embrace new social and economic philosophies. It does not require a warped or too vivid imagination to visualize the constitutional legality of an economic system wholly inimical to our past great traditions. It becomes apparent, therefore, that we the believers must undertake the tremendous responsibility of restor-



F. M. Carlson

ing our national thinking and our national action to a plane consistent with an enlightened free economy.

To do this, we must look to the core of the problem; we must trace the developments which have taken place along the road to a semi-statism and, once this has been done, we must proceed with constructive corrections; not with mere reprisals or the familiar "return to the good old days" but with a forthright resurgence of a new capitalism vigorous enough to meet today's rather than yesterday's challenges.

Governmental Controls

Prior to 1932, government regulation had not assumed undue proportions. With the exception of the Sherman Anti-Trust Act and its companion, the Clayton Act, neither of which were too zealously en-

Address at the Sixteenth Annual Midwinter Conference, Public Utility Buyers' Group, N.A.P.A., Chicago, February 10, 1947. forced, the state and national governments had followed somewhat of a "laissez-faire" policy. Interference with business and industry largely took the form of protecting the health, welfare and morals of the people. The Pure Food and Drug Act is typical of this period.

The collapse of the run-away inflation of the twenties embittered the people of this country and the world against that evil thing called capitalism and big business. It opened the door to a multitude of The significance of these hectic years has not been so much that they engendered a series of alphabetical agencies; that business became the subject of hostile and microscopic scrutiny; that the "trust-busters" once again wielded their powerful club; or that the bogey of administrative law harassed our every business move. The real significance was the fact that the people, and to some degree rightly so, lost faith in capitalism; that, in their indecision and fear, they entrusted their economic

As Eric Johnston, the former President of the United States Chamber of Commerce so aptly put it, our goal should be to make everyone a capitalist. He states, and rightly so, that the people must be made to feel that they have a definite stake in capitalism. The more and more capitalists there are, the safer becomes our stake in capitalism and the more enduring it will be.

You and your associates, indeed all American industry, have the key to unlock the door to a new capitalism. Your presence at the Wailing Wall will be as useless as your refusal to face the facts and to take the required steps. If you believe in free enterprise, if you believe it to be the fountainhead of America's future progress, for Heaven's sake get out and preach the gospel! The education of the people, by word and by deed, is vital to the creation of our new capitalism,

Incentives for All

Assuming we can do this, and do it we must, let us turn next to the remedial steps which I submit should be considered in setting our house in order, both within industry and within the government.

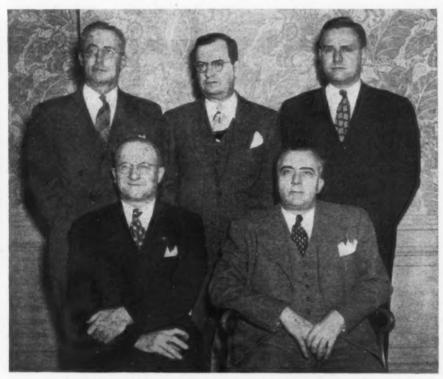
Before we get into a consideration of specific items, it may be well for us to reestablish or redefine some of the fundamentals of a free enterprise economy. In such a society, progress is made primarily through stimulating the voluntary effort of the individual. All of the factors entering into production must have some incentive to do so.

The laborer must have an incentive to work, both in the form of adequate financial income for doing his best job and a psychic income arising from the recognition on the part of his employer that he is a vital and necessary adjunct of his company. The employer, who provides employment, and the investor whose savings create new employment opportunities, must in turn be furnished with incentives in the form of profits and of dividends. Our national policy, therefore, should be designed basically to offer incentives to all three groups, and any policy to the contrary will impair our ability to maintain the high level of employment so necessary for our well being.

Character of Free Enterprise

In short, our free enterprise economy contains, I believe, the following characteristics:

1. It is voluntary. The government's role is to lay down the basic



OFFICERS OF THE PUBLIC UTILITY BUYERS' GROUP

Front row (left to right): Charles F. Wilson, Dallas, Vice Chairman;
N. C. Stirewalt, Springfield, Ill., Chairman.

Rear row (left to right): R. A. Graves, Kansas City, Secretary-Treasurer;

George H. Cole, Birmingham, Vice Chairman; C. F. Ogden, Detroit;

Vice Chairman.

governmental controls designed to minister to the sick economy and, finally, further opened the door to entirely new economic concepts, the brain-children of all the ambitious social and economic planners who found their Mecca in the New Deal. Every tried, and many untried economic panaceas were commenced. They ranged from abandoning the gold standard, devaluating the dollar and priming the pump to, paradoxically enough, the creation of actual and unwieldly business monopolies under the N.R.A. — a violent reversal on the part of New Deal thinking and, unfortunately, quite typical.

welfare to the government and that they permitted their individual liberties to be withdrawn and eaten away. In addition, we were given irrefutable evidence that the national government was willing and eager to extend its power, to expand its sphere of influence into every nook and cranny of our economic and social life.

Faith Is Needed

It seems to me that, before we can take the curative steps required in Congress to limit the government's authority, we must first seek to reacquire that los tfaith of our people in free enterprise.

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rules of the game rather than to play it. Regimentation, directives and government policy restricting initiative are at a minimum.

2. The instruments of production, the natural resources of the country are, for the most, owned and developed by private citizens, either individually or corporately.

3. The individual remains free to become, within his own ability, an employee, an employer, or self-

employed.

4. The consumer, who in turn is one of the three just mentioned, through his freedom of choice, actually directs production, determines what will be produced and at what

price.

Through this freedom of choice and opportunity, backed by a competitive motive, the productive work of society gets done. Thus individual initiative and ambition are harnessed and made available to all segments of society through the inventions, discoveries, products and services evolved by all of us. Simple and fundamental as these premises may sound, they seem to have been forgotten by many of us and certainly they have been deliberately ignored and trod upon by our recent economic planners.

Proper Role of Government

Truly there should be something of an intimate relationship between man's faith and man's political organization. When we place our faith in free enterprise, we must of necessity create a political atmosphere sympathetic to that faith.

By its very nature, free enterprise requires a minimum of governmental interference. We could endlessly debate political and economic theory, the degree to which the state should extend its authority under the guise of the welfare of the people and, very likely, our debate would reach no definite conclusion or concurrence of opinion. Our own history, however, gives us sufficient proof that insofar as a free economy is concerned, the results of our efforts are greatest when the state limits its control to a degree which assures us, individually or as a group, of equal opportunity

I do not mean to intimate that the state should neglect the social responsibilities inherent in any economy. Alleviation of the hardships of unemployment, the orderly retirement of and financial provision for the aged, and other similar functions, are all legitimate ground for the state's inquiry. In the past few years, however, business and indus-

try have come to the realization that they, in cooperation with government, must assume the burden of our social responsibilities and are proceeding to do so through such agencies as group insurance, pension plans, contributions to unemployment, workmen's compensation, and social security insurance. These items are in reality costs of production, and it is high time that we have come to look upon them in such a manner.

The American people must be ever vigilant, however, to recognize the point at which the protection of human rights and the implementation of social benefits become the cloak for centralized direction of in-

dividual activities.

If you agree basically with these characteristics as being the fundamental tenents of a free enterprise economy, it next becomes necessary to closely examine the position which the national government is taking or has been given by Congress with respect to the degree of control and interference it now exercises over industry. We must examine them with a view to rooting out those statutes, directives and regulations which constrict the workability of a really free economy. The rooting out will not be an easy task-it is infinitely more difficult to withdraw power than to grant it. Pressure groups within and without the government will tenaciously obstruct our progress but the task must be done. Education will, I hope, give us the ardent support of the American people and, aware of the nature of our job, we cannot halt until we have set ourselves free.

Regaining Our Balance

Specifically, then, to what tasks must we set our sights if we are to bring about a proper balance between capital, labor and government?

Insofar as the government is concerned, and bear in mind that these proposed changes must be made in Congress, our crying need is for a return to Constitutional government. By legislation and directive, the government occupies a commanding position in those areas which heretofore were considered the exclusive prerogatives of business management. I refer to such things as industrial relations, which now are completely dominated by the Wagner Act; to financial policy, now under the critical and restrictive purview of the Securities and Exchange Acts, (You in the public utility industry scarcely need be reminded of this particular activity); to sales and pricing policy, now subject to the Robinson-Patman Act.

Things recently reached the point where industry was told what it must produce, the wages it must pay, and the price it must not exceed for its products. Literally everything but how to make a profit. Admittedly these were emergency measures, but they have not been completely eliminated and are illustrative of the lengths to which the government can go in regulating our industrial economy. I don't wish to intimate that these and similar Acts are not necessary for the good of the economy, but certain of them contain fundamental statutory mistakes, the Wagner Act in particular. Their unfavorable significance for industry comes about from the fact that, because of their nature, they require administration. The congress cannot, it seems, legislate to the last detail, and consequently there have arisen administrative bodies whose function it is to interpret the law, largely as they see

Legislation and Administration

Congress enacted broad frameworks and the administrative agencies in turn determined policy, supposedly to implement such frameworks. In practice, however, many such agencies have reflected, instead of Congressional intent, unwarranted prejudices of the administrative personnel. They have succeeded in thwarting legislative intent and have given rise to a mass of administrative law which, in many cases, is not subject to a review of the courts as to fact.

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The American Bar Association and the judiciary have become seriously concerned over this unfavorable development and have urged a complete overhauling of our national government's administrative procedure. The solution lies with the Congress, which must insist that legislative power rests solely with Congress and in no other arm of the government. This step must be taken immediately and, until it is done, we will not be in a position to move forward to the next logical level, that of redefining the area in which the government should exercise its authority.

Let us examine the government's authority in the field of labor. Under government protection of one of the most one-sided statutes ever enacted by Congress, the Wagner Act, organized labor has developed into a series of monopolies that represent a graver threat to public welfare than was ever true of any business monopoly. The prospects of economic paralysis, easily visible in the recent coal strike, the not so recent rail strike, and similar instances, were the shameful results of a national government completely dominated by one pressure group.

If the industrial history of 1946 has brought nothing else of a constructive nature, it has at least shown the urgent need of a national labor policy that meets the previously described characteristics of a free enterprise economy. The closed shop restricts the laborer's free choice of employment and should be abolished. Labor's right to exercise the strike weapon should be restricted, and strike against the public welfare should be forbidden. The employer, who has no affirmative rights under the Wagner Act, should be placed on an equal bargaining position with the representatives of labor and his right of free speech must be restored. In short, the government must lay down the rules with equality for both parties. If the government can lay claim to any role in the problem of industrial relations, it is only one of offering its service as a mediator, and even in this field the government's success as a third party has been unimpressive.

Fiscal Policies

The government's fiscal policy also calls for careful scrutiny. Of primary importance is a balanced budget and a systematic reduction of the national debt. Aside from the wholesome influence these steps would have upon our economic structure, it would signify in part, at least, the abandonment of the government's attempt to manage our economy. The elimination of this role would materially reduce budget needs. Unfortunately, many budget items cannot seemingly now be reduced—the Veteran's program, debt service and national defense constitute the bulk of the budget; but much can be done to the "cost of government" and the effort will bear rich reward in reduced taxes and the elimination of government

From the standpoint of tax policy, Congress will do well to bear in mind the basic fact that taxes should be collected for revenue purposes only and not, broadly speaking, for social purposes. In line with a competitive economy, no tax policy should offer serious impediment to

the exercise of initiative either to labor, industry or the investing public. Prompt attention should be given to a reduction of personal income taxes, the elimination of taxation on intercorporate dividends and of double taxation on dividends received by the investor.

There is another area into which the government has moved with questionable results, and that is the artificial maintenance of price levels. Anything done by the government, or any agency for that matter, which distorts the orderly operation of a free market should be carefully scrutinized. I refer specifically to the maintenance of farm products at unwholesome and unrealistic levels, the bald concession to the silver mining interests and similar price-rigging policies. On the matter of farm products, we are beginning to price these commodities out of the world market, and the American consumer is required to expend a disproportionate

amount of his income for farm products. Incidentally, the national government can lay much of the blame for its wage strife to this one unwise policy. Wage demands were tied to the rapidly rising cost of living, which in turn was distorted by excessive, government supported agricultural prices.

Many of you are undoubtedly thinking that it is impossible, practically speaking, for our national government, since it is political in nature, to avoid giving way to pressure groups. That would be most certainly true of a managed economy, but it is far from true if the government's authority and control are limited to their proper spheres.

Are We Headed for Depression?

There has been a great deal of talk within the past few months that America is headed for a recession or depression in 1947. The recent stock market slump is pointed to as strong (Please turn to page 358)



".... And so I said to myself — This time I'll sell ol' J. B. or know the reason why."

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RECENT ANTI-TRUST LAW DECISIONS

Bu Leo T. Parker

Many technicalities are involved in the rights of purchasers and sellers under existing Federal anti-trust legislation

T least three important antitrust laws now are in effect, namely the Sherman Act, enacted July 2, 1890, the Clayton Act, enacted October 15, 1914 and the recent Robinson-Patman Act.

Not all monopolies are denounced by the Anti-Trust legislation of Congress. It is only such as are in restraint of interstate traffic or commerce, and it is this sort of combination that Congress has attempted to prevent. Nor are all agreements, under which the costs of conducting interstate commercial business may be increased, condemned by the Anti-Trust legislation. It is only where there is some direct and immediate effect upon interstate commerce that monopolies are illegal. And it is only where the intent to injure, obstruct, or restrain interstate commerce is an obvious consequence, or that such is the necessary effect of the alleged unlawful combination or agreement, that relief may be had in pursuance of the Anti-Trust legislation of Congress.

See Hopkins v. United States, 171 U. S. 578, where the Supreme Court of the United States said:

"Where the subject-matter of the agreement does not directly relate to and act upon and embrace interstate commerce, and where the undisputed facts clearly show that the

purpose of the agreement was not to regulate, obstruct or restrain that commerce, but that it was entered into with the object of properly and fairly regulating the transaction of the business in which the parties to

the agreement were engaged, such agreement will be upheld as not within the statute. . .

Price Cutter Liable

The Clayton Act was enacted after the Sherman Anti-Trust Act. Later the Clayton Act was amended by Robinson-Patman Act 1, 15 U.S.C.A. This latter Act, among other provisions, prohibited sales of merchandise in violation to certain price arrangements. An offender is liable in damages for three times the amount of damage sustained by a competitor.

For illustration, in American Ass'n v. Anchor Company, 153 Fed. (2d) 907, reported June, 1946, the testimony proved facts, as follows: The American Ass'n manufactured and sold biologics products. Its only posted price was 75 cents for sales to consumers. In making these sales it acted through druggists who received the serum on consignment. Sometimes, however, the shipments were made to the druggists c.o.d.

The Anchor Company was in the same business and sold its serum

through County Bureaus.

In January 1937, the American Ass'n received complaints from its retail druggists who stated that they could not sell the American serum at 75 cents because the County Bureaus were selling the Anchor serum to consumers at 65 cents. Thereupon, the American Ass'n instructed its retail druggists to reduce consumer prices to 65 cents, in order to meet the Anchor Company's competition.

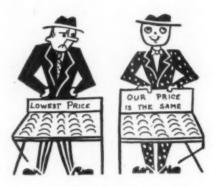
Later the American Ass'n sued the Anchor Company for heavy damages based on provisions of the Clayton Act 2, as amended by Robinson-Patman Act 1, 15 U.S.C.A. 13 (a, c, d, f). The American Ass'n proved that the Anchor Company had filed with the Secretary of Agriculture a list of its selling prices to each class of buyers, as follows: To consumers, 75 cents per 100 cc.; to dealers, 63 cents per 100 cc.; to wholesalers, 51 cents per 100 cc.; and to volume contract purchasers, 49 cents per 100 cc.

Because the Anchor Company cut its prices to 65 cents per 100 cc to consumers, the higher court held that this cut had damaged the American to the sum of \$4,449.31.

In holding the Anchor Company liable to American Ass'n for triple damages, or \$13,347.93, the higher

court said:

"The question here is whether Anchor violated its own published price list with respect to Serum



Association. The District Court held that it did, and we think rightly so . . We think the uncontradicted evidence discloses damage to plaintiff (American Ass'n), and the jury should have so found . . . As to \$13,-347.93 of the verdict we affirm."

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Clayton Act

The Clayton Act makes price discrimination unlawful only in case it tends to prevent competition. Therefore, a seller does not violate this law although he "cuts" prices unless the testimony proves that the lower price prevents competitors from taking away the price cutter business which they might have secured had the price cutter not lowered his prices.

For illustration, in Samuel H. Moss, Inc., v. Federal Trade Commission 148 Fed. (2d) 378, reported July, 1945, a company was shown to have charged different prices for its product in different The higher court held localities. that the company might be guilty of violating the Clayton Act if the testimony proved that the lower price prevented, or tended to pre-

LEGALITY OF PRICING PRACTICES

Can a manufacturer legally control the prices at which its products are sold to consumers?

Under what circumstances is a manufacturer liable in damages to a competitor for reducing resale prices of its product?

Can a company charge different prices for its products in different localities?

Is a company prohibited from meeting a competitive price?

Do the courts uphold Federal Trade Commission actions with regard to collusive or basing point prices?

If goods are shipped to seller's warehouse in another state, in anticipation of orders within the latter area, are they considered as being in interstate commerce?

To what extent can price information be interchanged among competitive producers through the medium of a trade association?

Is the discussion of future prices a legitimate trade association activity?

Can a buyer avoid liability under a contract on the grounds that seller's profit on the transaction is unusual or unreasonable?

vent, any competitor from taking away business from the company.

Also, this court explained that the price cutter would not be guilty of violating the Clayton Act if the testimony proved that its lower prices merely "met" "equally low price" of competitors.

Also, see Lowe, 67 F. Supp. 287, reported November, 1946. In this case suit was filed against a manufacturer and retailers under Sherman Anti-Trust Act on the ground that a contract between the manufacturer for sale of a package containing a lamp, toaster, and radio for \$29.25, without any profit to the manufacturers, was in restraint of interstate commerce. This court held the manufacturer not liable, and said that to justify a preliminary injunction, the testimony must necessarily establish a contract, combination, or conspiracy in restraint of interstate commerce. In this case sales of the package were made locally and in the same state. And the Federal Court refused to issue a preliminary injunction against the retailers who proved that their only connection with the manufacturer was to purchase the packages in the regular course of their retail business and resell them.

Another important point of law is that an agreement to increase efficiency or high standard of morals is not a violation of anti-trust laws.

For illustration, in Hughes Tool Company, 66 Fed. Supp. 1006, reported October, 1946, the higher court held an agreement not in violation to the Sherman Anti-Trust Act where the members of a cinema association, organized to establish high moral and artistic cinema standards, agreed not to distribute cinema not approved by the association.

On the other hand, see Marquette Cement Mfg. Company v. Federal Trade Commission, 147 Fed. (2d) 589, reported May, 1945. Here a cement company filed suit and asked the higher court to review an order of the Federal Trade Commission to cease and desist from engaging in unfair competition by entering into a combination among Portland



cement producers to employ a pricing system. In other words, the Commission charged that seventy-five producers of Portland cement were engaging in unfair competition by entering into a combination among themselves to employ what is known as "a multiple basing point system of pricing". The substance of the charge was that by the employment of this system such cement

producers violated the anti-trust laws, particularly the Sherman Anti-Trust Act.

The higher court refused to reverse the order of the Federal Trade Commission.

Can Refuse to Sell

Before the Sherman Act was enacted, a seller might legally reject the offer of a buyer for any reason that appealed to him; it might be because he did not like the prospective purchaser's business methods, or because he had some personal difference with him, political, racial, or social. That was purely his own affair, with which nobody else had any concern. Neither the Sherman Act, nor any decision of the Supreme Court construing the same, nor the Clayton Act, has changed



the law in this particular. See Brosious v. Pepsi-Cola Company, 155 Fed. (2d) 99.

The testimony presented in this case was that the Pepsi-Cola Company appointed the Cloverdale Company its exclusive bottler and distributor in a named territory. The latter company had sold the products to a man named Brosious for many years when the Cloverdale Company demanded that Brosious now contract for at least three counties in addition to his former territory, paint his trucks a prescribed color and distribute only the products of the Pepsi-Cola Company. Brosious refused the proposals and sued both the Pepsi-Cola Company and the Cloverdale Company for recovery of treble damages under the Sherman Anti-Trust Act.

The higher court refused to grant Brosious a favorable verdict. This court said:

"It is the right of a trader engaged in a strictly private business, freely to exercise his own independent discretion as to the parties with whom he will deal . . . We conclude that the contract between the appellee corporations, independent of the interstate commerce, was not of itself offensive to the monpoly phase of the Sherman Act."

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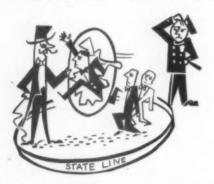
Also, this higher court refused to hold that a conspiracy existed, and said:

"We are unable to make anything more out of the interviews with Pepsi-Cola officials than that they do not interest themselves with the distributor's business so long as he adheres to the contract and the volume of business is regarded by them as satisfactory. Such a policy is not unusual and is simply good business in a competitive economy."

For other higher court decisions involving variation of the law on the right of a seller to choose buyers, see United States v. Colgate & Company, 1919, 250 U. S. 300, 7 A.L.R. 443; Mennen Company v. Federal Trade Commission, 288 F. 774, 780, 30 A.L.R. 1120; Wholesale Grocers' Ass'n v. Federal Trade Commission, 5 Cir., 277 F. 657; Coca-Cola Bottling Company v. Coca-Cola Company, D. C. Del., 269 F. 796; J. B. Lippincott Company v. Federal Trade Commission, 137 F. (2d) 490, 495; and Pittsburgh Plate Glass Company v. Jarrett, D. C. Gas., 42 F. Supp. 723.

Not Interstate Commerce

According to a recent higher court neither anti-trust law can be violated by buyers or sellers who transact strictly intrastate business. And, if merchandise is shipped from another state and placed in storage, the business of the con-



signee or buyer cannot be interstate commerce. For illustration, in Jewel Tea Company v. Williams, 10 Cir. 1941, 118 F. (2d) 202, 207, the higher court said:

"Where goods are ordered and shipped in interstate commerce to meet the anticipated demands of customers without a specific order and the goods come to rest in a warehouse, the interstate commerce ceases when the goods come to rest in the state."

Again in Walling v. Goldblatt Bros., 128 F. (2) 778, 782, the higher court said:

".. Here, once the goods reached the warehouses, they assumed a wholly local character. The function of the warehouses was to furnish activities and means for the conduct of a relatively local retail business conducted by one company. This function was that of an ordinary warehouse for a retail establishment and bears no resemblance to a 'throat' or a 'current of commerce'. Upon delivery to the warehouse, interstate commerce ceased . . . "

interstate commerce ceased . . . "
It has been held, also, that interstate commerce terminates at a point where the parties intended that it should end, i. e., it ceases at the point of its destination. See Danciger v. Cooley, 248 U.S. 319, and Binderup v. Pathe Exch., 1923, 263 U. S. 291. Thus when merchandise is transported from one state into another, the interstate movement ends with the delivery of the merchandise to a distributing company. Subsequently sales and deliveries to customers by the distributor constitute intrastate commerce, and neither the Sherman, Clayton nor Robinson-Patman Anti-Trust laws are applicable to sales or distribution of the merchandise.

Right to Purchase

Considerable discussion has arisen from time to time over the legal question: When does a company violate the anti-trust laws by buying a competitor's business?

Modern higher courts consistently hold that a person, or corporation, engaged in any manufacture or trade may lawfully buy the business of any of his competitors. His first purchase would at once diminish competition. If he continued to purchase, each succeeding transaction would still diminish competition. If his capital was large enough to enable him to buy the business of all competitors, the last purchase would completely exclude competition, at least for a time.

See Lumberman's Company, 248 Fed. (2d) 212, where the higher court said:

"We are not aware of any rule of law which makes the motive of the coventee the test of the validity of such a contract. On the contrary, we suppose a party may legally purchase the trade and business of another for the very purpose of preventing competition, and the validity of the contract, if supported by a consideration, will depend upon its reasonableness as between the parties . . . The sale and transfer by a person of his property and good will to another cannot be repudiated on the ground that the purchaser acquired the property for

the purpose of obtaining a monopoly of the business, and in pursuance of an illegal combination in restraint of trade."

Also, any "combine" which does not lessen or tend to lessen competition is legal.

In Cement Manufacturers Protective Ass'n v. United States, 268 U. S. 588, the testimony proved that various members of an Ass'n were accustomed to make contracts with purchasers which obligated the manufacturer to deliver in the future, at a maximum price named, the merchandise required to complete a specified piece of construction work, but the contract gave the purchaser the advantage of any decline, before delivery, in the market price.



In order to prevent the various purchasers from obtaining more cement than they were entitled to receive, the members of the Association reported details of all sales to the Secretary who in turn sent reports to all members. The Association supplied its members with books of freight rates so that competing manufacturers may figure the delivered cost of a particular shipment at the same price. The members also rendered monthly reports to the Secretary of delinquent accounts, and the exact amount of merchandise in stock of the various manufacturers, so that this information could be transmitted regularly to all members. The evidence also showed that the members held meetings at which was discussed subjects as the return of containers, market reports, trade' acceptances, but it was not proved that future prices were discussed.

In holding these acts *not* in restraint of trade, the Supreme Court of the United States said:

"We realize that uniformity of price may be the result of agreement or understanding, and that an artificial price level not related to the supply and demand of a given commodity may be evidence from which

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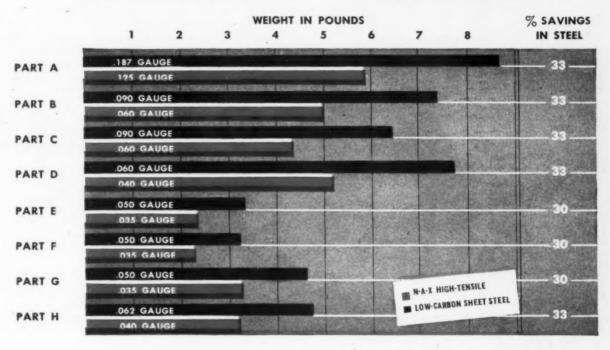
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3 TONS N-A-X + TONS CARBON SHEET STEEL



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Corporation

N-A-X ALLOY DIVISION . DETROIT 18, MICHIGAN UNIT OF NATIONAL STEEL CORPORATION

such agreement or understanding, or some concerted action of sellers operating to restrain commerce, may be inferred. But here the Government fails to show the effect on price and production except such as would naturally flow from the dissemination of that information in the trade and its natural influence

on individual action." Also, in Maple Flooring Manufacturers Ass'n v. United States, 268 U. S. 563, it was disclosed that the manufacturers of flooring formed an association and distributed among themselves such in-formation as the average production cost of their products, including the various sources. Also, monthly booklets were distributed among the members giving information of the freight rates from various points, kinds and amount of flooring sold, with the prices received, commissions paid, amount and kinds of stock on hand, and of unfilled orders, monthly production and new orders booked. This information embraced only past transactions and omitted the names of producers. Current prices, and many other details, were transmitted in summarized form to the members by the Secretary of the Association, without, however, revealing the identity of members in connection with specific information transmitted, and was given wide publicity through publication in trade journals.

Also, the members congregated at monthly meetings but did not discuss future prices. In holding these acts valid and not in restraint on

trade, the court said:

"We think it might be urged, on the basis of record, that the defendants (Association), by their course of conduct, instead of evidencing the purpose of persistent violators of law, had steadily indicated a purpose to keep within the boundaries of legality as rapidly as those boundaries were marked out by the decisions of courts interpreting the Sherman Act . . .

On the other hand, see Eastern States v. United States, 234 U.S. 600, where it was disclosed that members of an Association sent names of dealers, who were black listed for selling directly to consumers, to the Secretary of the Association for distribution among its members. This was held to be a violation of the Sherman Act.

And, in American Column Company v. United States, 257 U.S. 377, the United States Supreme

Court said:

"It has been repeatedly held by this court that the purpose of the

statute is to maintain free competition in interstate commerce and that in concerted action of men or corporations to cause, or which in fact does cause, direct and undue restraint of competition in such commerce falls within the condemnation of the Act and is unlawful . . .

And again in United States v. American Linseed Oil Company, 262 U. S. 371, at p. 390, the Supreme Court of the United States

said:

"In the absence of a purpose to monopolize before the compulsion that results from contract or agreement, the individual certainly may exercise great freedom; but concerted action through combination presents a wholly different problem



and is forbidden when the necessary tendency is to destroy the kind of competition to which the public has long looked for protection.

Validity of Contracts

Generally speaking, all sale contracts are valid that do not result from intent to destroy, lessen or unfairly eliminate competition. Obviously, the following higher court decisions have not dealt with O.P.A.

regulations.

For illustration, in Handley-Mack Company v. Godchauk Sugar Company, 2 F. (2d) 435, a purchaser of sugar attempted to avoid liability on a contract involving the purchase of 800 barrels of sugar. The purchaser contended that the contract was void because the seller's customary profit was approximately 3 cents a pound, while in this instance, seller's profit amounted to more than 7 cents a pound.

However, the court held the buyer

liable on the valid contract.

In another case, Milliken-Tomlinson Company v. American Sugar Refining Company, 9 F. (2d) 809, it was disclosed that a purchaser sought to avoid liability on a contract for sale of merchandise at 221/2 cents a pound. The buyer contended that the selling price netted the seller an unreasonable profit.

In nolding the purchaser liable on the contract, this court said:

'The contract disclosed the full transaction between the seller and buyer, and contemplated that the sale should pass the title without any restriction on the right of the buyer to resell as it might choose. ... There is no merit in the claim made by the defendant that the contracts for future delivery at a fixed price are illegal as tending to unreasonably increase the price of sugar."

Restraint of Trade

Considerable discussion has arisen from time to time over the legal question: Can a manufacturer lawfully compel a seller to sell his mer-

chandise exclusively?

For example, in Butter Company v. Federal Trade Commission, 4 F. (2d) 910, it was shown that a manufacturer made contracts with many retail dealers throughout the United States. Each contract bound the dealer to maintain the resale price fixed on the labels, and also obligated the dealers not to sell, or permit to be sold on their premises, the merchandise of competitors. The manufacturer enforced these provisions by refusing to sell to dealers who refused to make the agreements, as well as by threats of suit.

The manufacturer contended he was not engaged in unfair competition, and therefore was not a violator of the Anti-Trust Laws, because he was using the same methods as his competitors, and that "those methods were inherent

in this business".

It was also contended by the manufacturer that the contracts were not contracts of sale, but that the dealers were "agents" handling the merchandise on consignment, as they were permitted to exchange old and unsaleable merchandise for new merchandise.

However, the court held the contract in violation of the Clayton

Act, and said:

"It is argued that, because of the unique character of the business, this industry presents distinctiveness from that of others where price fixing has been condemned. . . . Section 3 of the Clayton Act condemns sales or agreements of sales made under terms as to substantially lessen competition or tend to create a monopoly in any line of commerce."

Also, see Standard Fashion Company v. Magrane-Houston Com-(Please turn to page 365)

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"It's me! And it all began when I went out to see our local Quonset dealer, looked over some Quonsets in use and got all the information on them I could.



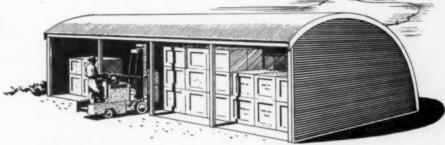
"Next day, I showed our building committee that the Quonset 24 was the answer to our problem—easily and quickly erected, low in cost, fire-resistant and durable.



"So now we've got six Quonsets, and everyone's happy. Especially me, because the boss said I had proved myself alert to new trends—and promoted me!"



Quonsets aren't just a coming thing in industrial buildings—they've already arrived! Your local Quonset dealer will be glad to bring you up to date on the multitude of ways Quonsets are being profitably used...or write direct for additional information and your dealer's name.



THE QUONSET 24

An economical, permanent vehicle shelter, tool shop, storage space—a building of practically unlimited utility. Stran-Steel nailable framing members permit a wide choice of interior arrangement and collateral materials. Supplied with open front, solid front panels or sliding doors. Width, 24 feet, with any length you like, in 12-foot extensions. All-steel safety and sturdiness—easy to erect and maintain.

GREAT LAKES STEEL CORPORATION STRAN-STEEL DIVISION . DEPT. 45 . PENORSCOT BLDG. . DETROIT 26, MICH.

STRAN-STEEL DIVISION . DEPT. 45 . PENOBSCOT BLDG. . DETROIT 26, MICH.
UNIT OF NATIONAL STEEL CORPORATION



THE FAMOUS QUONSET 20



No sag, no warp, no rot when you use Quonsets. The "20" describes the width, and the length is variable, in 12-foot extensions.

REG. U. S. PAT. OFF.

Purchasing Agents and their Assistants are invited to check the pre-paid "Ask Purch" postcards on Pages 19 and 20 for late catalogs and bulletins on New Products, Materials, Finishes, Equipment, etc.

ECONOMICAL INDUSTRIAL GRINDER



ELECTRIC handgrinder, called the Duplex, a dual purpose tool for use either as a straight handgrinder or with an attachment which converts it into a flexible shaft tool, has been developed

by the Dumore Co., Racine, Wis. It is available in two different kits. The Standard kit includes the Duplex plus 9 different accessories (mounted wheels, files, arbors, etc.); the deluxe kit includes 27 accessories. Power is supplied by a ¼ hp motor. The chuck has ¼" capacity and can be adapted to 3/32" and ½" shank tools with collet sleeves provided.

SEAMLESS STAINLESS STEEL POTEYE POTEYE made of 19-8 stainless steel, with a smooth finish and said to be unbreakable has been developed by

Rodney Hunt Machine Co., Orange, Mass. Though higher priced than porcelain or phenolyte poteyes its indestructibility is said to provide long-run saving.

RECIRCULATING VALVE



RECIRCULA-TING valve that is claimed to eliminate centrifugal pump failures resulting from insufficient flow of fluid through the pump is announced by Hammel-Dahl Co., 243 Richmond St., Providence 3, R.I.

System consists of automatic recirculating valve operated from fluid flow and designed to by-pass the minimum quantity required to eliminate pump overheating. By pass is throttled when output of pump is sufficient. Valve may be installed easily in existing pump piping.

NEW AGGREGATE WIRE SCREEN

ROE-FLAT aggregate wire screen, with precision openings, is announced by Woven Wire Fabrics Division,

John A. Roebling's Sons Co., Trenton, N. J. This new screen is designed to provide maximum metal surface exposed to abrasive wear. Its flat surface evenly distributes wear, manufacturer states, increasing screen life up to 90% above conventional types.

METAL SURFACE PRINTER



ILLUSTRATION shows a new marking device for printing continuous or spaced impressions on tool steel, sheet metal or steel tube developed by Jas. H. Matthews & Co., 3959 Forbes St., Pittsburgh, Pa. Called the "Bar-Tube-Sheet Printing Machine" it will print all sizes of flat and round bars from ¼" square or ¼" diameter up, flats or sheets ¼" wide and up. Unit consists of a cast aluminum frame with detachable cast handles. Separate machines are required for round bars, for flats or squares, and for sheets and strips.

CLAMPING KIT FOR RUBBER HOSE NEW master kit of Punch - Lok bands, which serve practically every need for clamping or banding rubber

hose to nipples and fittings and for a wide variety of general repair applications, is introduced by B. F. Goodrich Co., Akron, Ohio. This kit includes a quantity of both open-end and preformed bands.

PLASTIC HAMMER





recommended for machine shops, tool rooms, shops, and all types of industrial and service organizations where mars, dents and blemishes on dies and fixtures must be avoided. In foundries it can be used for tapping core boxes and general use. Head is die-cast, non-breakable, fire and acid proof and of a non-conducting material. Available in 3 sizes.

SMALL-MOTOR DRIVE UNIT COMPACT motor drive unit, designed for remote and automatic operation of single or multiple stamped steel

rheostats controlling generator voltages, motor speeds, lamp intensities, etc., is announced by Ward Leonard Electric Co., Mount Vernon, N. Y. Units are available for 115 or 230 v operation a-c and d-c. Size: 13" diameter, 7" high.

ALUMINUM HAND VISE

A L U M I N U M hand vise, known as the Palmgren No. 15 Hand Vise, designed to facilitate the handling of small parts for both bench and production jobs, is announced by Chicago Tool and



Engineering Co., 8383 South Chicago Avenue, Chicago, 7, Ill. Vise has aluminum jaws which grip solidly without marring or scratching. Jaw faces are 1½" wide; open to 1½". Vise weighs only 7 oz; and is 5" long. Bulletin No. 150 available.

(Please turn to page 148)

CAR-NA-VAR VACUUM CLEANER

... removes more

dirt per minute

than any other

machine tested."

... According to Independent Testing Laboratory Report!

That's the remarkable performance turned-in by Car-Na-Var in recent tests conducted by an authoritative, independent university organization. Yes, of all cleaners tested, the new, silent Car-Na-Var Vacuum Cleaner removed more dirt per minute than any other machine!

Never before has a portable heavy-duty vacuum machine offered such powerful cleaning action plus such quiet, efficient operation. Designed for both "wet" and "dry" pick-up, the new, silent Car-Na-Var is the ideal machine for hospitals, hotels, schools, offices and other buildings where fast, quiet, efficient cleaning is essential. Reversible squeegees inside the nozzle—an exclusive Car-Na-Var feature—helps increase cleaning efficiency! New compact design makes the Car-Na-Var easy to use . . . easy to keep clean. Sturdy construction means trouble-free operation . . . long life.

Write for free circular that fully describes this remarkable Car-Na-Var Vac-

uum Cleaner.



1653 East National Avenue

Brazil Indiana

RUBBER
OR BRASS
SQUEEGEE
FOR "WET"
PICK-UP

FELT SQUEEGEE OR BRUSH FOR "DRY"

ORDER NOW ...

Adaptable for Blowing

(Continued from page 146) TRANSFORMER ARC WELDER

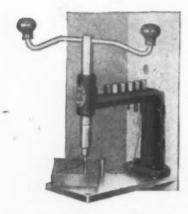


GENERAL purpose transformer arc welder, designed for use on single-phase power lines of limited capacity, has been developed by Westinghouse Electric Corp., Pittsburgh, Pa. It has three output ratings of 130, 160 and 180 amps. Three models are available with all necessary equipment and accessories included. Designed to conform with standards of the Natl. Electrical Mfgrs. Assn., and meet requirements of the R.E.A. Listed by Underwriters Laboratories, Inc.

SEGMENTED SELF-DESTROYING LABEL DESIGNED for trade-marks, underwriters' approval and similar factory-applied data, a "self-destroying"

label is announced by Avery Adhesive Label Corp., 36 W. Union St., Pasedena, 1, Calif. Self-destroying feature, over-coming the possibility of removing the label from the genuine product and placing it on any substitute merchandise, is accomplished by die-cutting the label so that it can only be removed in segments. Labels may be applied to metal, plastic, wood, varnish, glass or cellophane.

TAP GUIDE



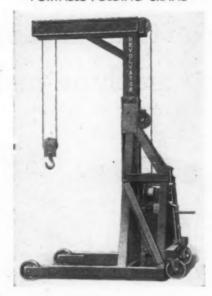
TAP Guide which is said to practically eliminate breakage, cut hand tapping time more than 50%, and turn out a true job, is announced by the Dahlstrom Mfg. Co., 420 W. So. 6th St., Minneapolis, Minn. It is known as the Dahlstrom tap guide, and comes equipped with 7 Adaptors ranging in size from 8/32 to ½".

COLD TANK PARTS CLEANER

NEW TYPE automatic multi - flow cold tank parts cleaner, designed to clean ordinarily inaccessible pockets

accessible pockets and remove hard carbon, oil, grease, sludge, engine varnish and gums, is announced by Turco Products, Inc., 6135 S. Central Ave., Los Angeles, Calif. Called the Turco Model A Turbulator, it cleans parts with a combined liquid scrubbing and solvent action. Will clean most transmission and small parts in 15 to 30 minutes, an average V-8 block in less than 2 hours and L-head motors in about one hour.

PORTABLE FOLDING CRANE



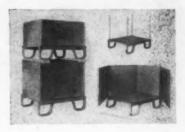
FOLDING portable crane, the upper part of which folds down to permit passage under low doorways, etc., is announced by Revolvator Co., North Bergen, N. J. Folding feature is effected by same crank and cable that is used for hoisting materials. Crane is equipped with low gear for lifting heavy loads. Maximum capacity 4000 lbs. Relatively light weight of crane adapts it for use in machine shops, assembly rooms, stock rooms, repair shops, warehouses, garages, etc.

SPECIAL METAL-WORKING LUBRICANT

DIE SLICK No. 5 is a special metalworking lubricant developed for extremely high pressures and/or high

temperatures, for use on ferrous or nonferrous metals. It is said to be effective for such applications as hot drawing, hot piercing punches, hot forging, deep drawing, and numerous other jobs, to prevent scoring and sticking of metal being formed. It will withstand pressures of more than 100,000 lbs. psi; can be used with temperatures up to 2300° F.; will not discolor work pieces; is non-corrosive, non-carbon-forming, and contains no graphite. G. W. Smith & Sons, Inc., 5400 Kemp Road, Dayton 3, Ohio.

COLLAPSIBLE SKID PLATFORM BOX



COLLAPSIBLE metal box attachment for use with skid platforms has been developed by Market Forge Co., 78 Garvey St., Everett 49, Mass. The skid platforms are provided with sockets to receive one-inch standard pipes which serve as corner posts. The steel panels for the sectional boxes are 12" high and provided with steel loops which engage the pipe-stakes. Panels may be built up at any height and stack readily when not in use. Possible arrangements with this equipment are shown in illustration above.

SAFETY GOGGLE CLEANING STATION

CONSTANT reminder to workers to keep their goggles clean, and equipment with which to do so, is

supplied by new safety goggle cleaning station developed by American Optical Co., Southbridge, Mass. Cabinet for wall attachment containing necessary cleaning and anti-fog materials is 13" long, 9" wide and 6" deep. Supplies of lens cleaning fluid, cleansing tissues and anti-fog compound, to reduce fogging, steaming and frosting of lens surfaces, are also available.

LATHE GRINDING ATTACHMENT



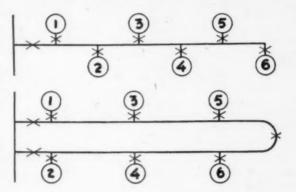
POWERFUL electric grinding attachment for use on lathes and other machine tools, designed primarily for precision external grinding, is announced by South Bend Lathe Works, 309 E. Madison St., South Bend, Ind. It is equipped with a 4" x ½" grinding wheel driven by a constant speed continuous duty ¼ hp motor and is available in frame sizes to fit various South Bend Lathes as well as other makes of lathes, milling machines, shapers, planers, etc. The grinding wheels come in different grades. Catalog available.

(Please turn to page 150)



INSTALL STEEL PIPING
ADEOUATE FOR TOMORROW'S NEEDS

..he halved his shutdown losses

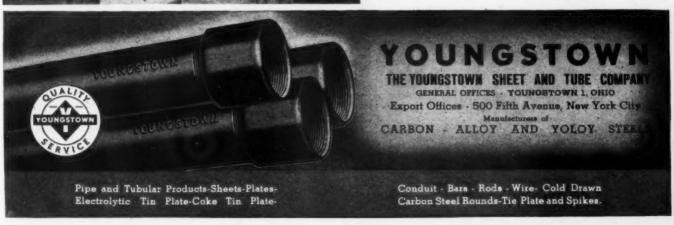


PETE'S plenty happy, and for good reason. He just made a change in his lines that will save the Company real money. He simply looped and sectionalized the header that supplies six steam-heated kettles in his department.

Now, when something goes haywire, he can shut off the steam on one side of the loop, and keep production going on the other side until repairs are made. Resultshutdown losses cut 50%. All it took was a few dollars worth of pipe, welding flanges and turns, valves, insulation and labor. Anybody can see the value of that investment, when production is badly wanted the way it is now.

Ask Pete and he'll tell you it's long-run economy to install piping adequate to do a job, today or tomorrow.

Distributors in all industrial markets have Youngstown pipe in a wide range of sizes. For their names, write, wire or phone our nearest branch.



(Continued from page 148)

PRESSURE LOCK WRENCH



VERSATILE Precision Pressure Lock Wrench for mechanics, machinists, plumbers, maintenance men, etc., is announced by BMC Mfg. Corp., Binghamton, N. Y. Tool has parallel jaws which provide a maximum gripping surface that gives the wrench a viselike gripping power of more than a ton. Tool locks, leaving both hands free. Other features include calibrated scale for quick adjustment with one hand to desired jaw opening. Available with ¾" and 1" jaw opening. Literature on request.

NEW LINE STAINLESS STEEL ELECTRODES COMPLETE new line of stainless steel electrodes in a full range of grades and diameters is presented

by Air Reduction Sales Co., 60 East 42nd St., New York, N. Y. All are furnished with a heavy extruded lime type coating for d-c application. All but the straight chrome analyses are obtainable with a lime-titania type coating which is usable on a-c or d-c. The slag produced by either of these coatings is easily removed.

STEEL STRAPPING TOOL



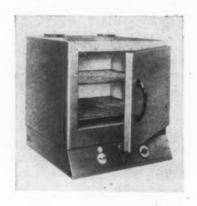
FASTER, lighter, steamlined combination steel-strapping tool, called the Acme No. 3 Steelstrapper, has been developed by Acme Steel Strapping Co., Chicago, Ill. Tool weighs 6¾ lbs. and is easy to handle mounted or unmounted. It can be operated on a flat surface of only 5". It has two levers, one for tensioning and one which seals and cuts the strap. The seals are automatically fed from a magazine which holds a clip of 100 seals. The strapper will handle ¼", ¾", ½" x .010" to .020" sizes inclusive, both flat and tight edge strap.

ONE-TON CAPACITY MOBILE HOIST

NEW one-ton capacity mobile oneman-operated hoist, called the Almco Universal Hoist, for transporting

and lifting heavy chucks, dies and machine parts, hoisting cars for repair work, loading and unloading trucks etc., is announced by Almco Inc., Albert Lea, Minn. Hoist is of welded tubular steel construction and rolls on ball bearing casters. U-shaped base fits easily into tight places. It can be furnished with a hand-operated worm-drive winch or with an electric or chain hoist. Available in both 7 ft. and 9 ft. overall height, or in greater heights on special order. Base is 6 ft. long, 46 in. wide overall, with 40 in. clearance between the legs.

LABORATORY OVEN

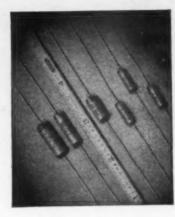


NEW laboratory oven which equalizes interior heat by a simple double venting device is announced by K. H. Huppert Co., 6830 Cottage Grove Ave., Chicago, Ill. It is designed for use in chemical laboratories doing precipitation, ash content and similar laboratory work, steel drawings, etc. Temperatures from 0° to 550° F. are thermostatically controlled. Oven interior is lined with steel and baked aluminum surface but a stainless steel chamber is also available. Interior dimensions 20" x 15" x 19". It consumes 2800 watts at 110 volts a-c or 220 volts single phase.

6-TON AIR HYDRAULIC PRESS SIX-ton capacity model air hydraulic press is announced by Air-Hydraulics, Inc., 401 Broadway, New York 13,

N. Y. Press operates on metals, plastics and leathers for assembling, riveting, embossing, staking, sizing, crimping, flanging, etc. 6-ton model works on a 120 to 1 ratio on the air intake pressure. Ram pressure is easily and quickly adjustable from pressures up to 12,000 lbs. Ram speed is adjustable from slowest action to 300 ipm. Stroke is adjustable from 1/16" to 5". Presses furnished for predetermined ram dwell or for single cycle automatic action. Catalog available.

MIDGET CAPACITORS



WAX impregnated capacitors, types ZY and ZZ, said to be smallest ever made, designed for portable radios, pocket meters, hearing aids, etc., are announced by Cornell-Dubilier Electric Corp., South Plainfield, New Jersey. Standard ZY units are ¾" long, and from 3/16" to 11/32" diameter. Values range from .0001 mfd to .006 mfd. d-c at 600 volts; .002 mfd to .02 mfd. to 400 volts; .004 mfd. to .2 mfd. at 200 volts and .01 mfd. to .05 mfd. "at 150 volts. ZZ units are ½" long, 5/32" to ¼" diameter and values range from .0001 mfd. to .01 mfd. at 150 volts d-c.

HACK SAW BLADE TENSION TESTER SIMOMETER, an attachment to test the tension of power hack saw blades quickly and easily regardless of their

length, width or thickness, has been developed by Simonds Saw and Steel Co., Fitchburg, Mass. It is attached directly to the blade and is easily removed when the blade has reached the proper tension. This procedure is said to lengthen blade life as much as 15%, insures straighter cuts, and reduces machine set-up time.

BALL BEARING TAKE-UP



STEEL frame ball bearing take-up is announced by Dodge Mfg. Corp., Mishawaka, Ind. This take-up incorporates the Dodge SC ball bearing take-up unit consisting of a ball bearing inner unit enclosed in a cast iron housing provided with ways on each side for supporting guides. It has a welded steel frame designed to afford ample strength and rigidity without excess weight, and is equally strong in tension or compression. Available in shaft sizes from 3/4" to 2-7/16" inclusive.

(Please turn to page 152)

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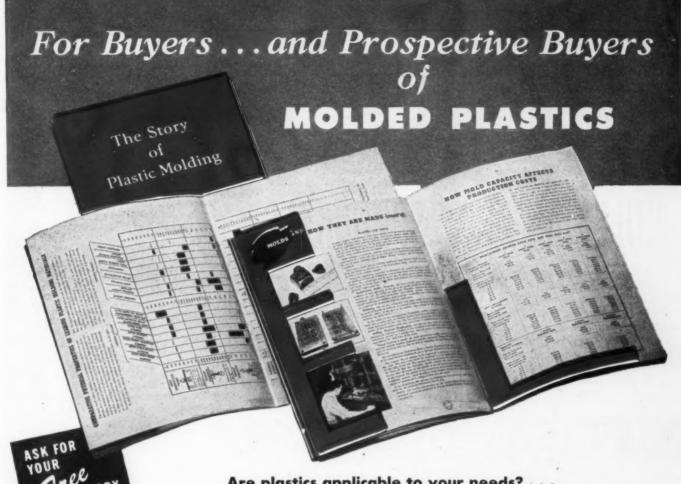
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Here are a few of the subjects covered:

- When to use molded plastics (also when not to use them).
- · Choosing the right material.
- Comparative physical properties of molding materials.
- The molding process.
- How molds are made.
- Relationship between mold cost and piece part cost.
- Designing for plastic molding.

Are plastics applicable to your needs? . . .

Which plastic is best suited to your job? . . .

How will design affect production volume and cost?

These are some of the things you should know before you have gone far with your plans and before you have designed the part to be molded.

These questions, and many more equally pertinent, are authoritatively discussed in our new book, "The Story of Plastic Molding." Charts, tables, and illustrations are used prolifically to explain each point. Result—a clearer understanding of the possibilities of molded plastics for your particular use, as well as their limitations.

Yes—this book is brimful of down-to-earth facts . . . information that is based on our quarter century of experience in plastics. We believe that you like thousands of others, will find it useful and valuable . . . a book you will want to keep and use.

Write for your copy today . . . on your firm letterbead, please. There's no charge . . . no obligation.



1025 N. Kolmar Ave.



Chicago 51, Illinois

Branch offices in key industrial centers



CULLMAN Stock SPROCKETS

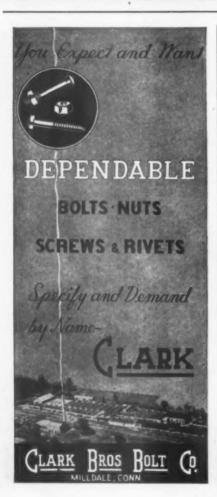
will do the job-Better!

With 2,000 types to select from—you are almost certain to find just the size you need for practically every transmission requirement—ready for immediate delivery. Cullman Sprockets—produced by fast, low-cost, high-precision methods—assure top operating efficiency. "Specials," too, are quickly available—made up by exclusive Cullman methods and specialized equipment.



Write today for tree catalog containing useful data and helpful facts for sprocket users. It lists dimensions.

CULLMAN WHEEL COMPANY
1352-P. Altgeld Street Chicago 14, Illinois





stay TIGHT permanently

BEALL SPRING WASHERS, with live, long-range action compensate for ALL causes of looseness including vibration, bolt stretch, wear, rust and break-down of finish under the nut and bolf head.

IN STOCK in all Standard Sizes; made of Carbon Steel, Stainless Steel, Everdur and Duronze.

BEALL TOOL DIVISION (HUBBARD & CO.)

160 Shamrock St. EAST ALTON, ILL.

STEAM HUMIDIFIER

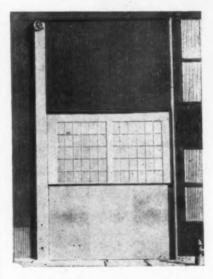


HUMID-O-MATIC steam humidifier operatable on 1 to 10 pound pressure is announced by Techtmann Industries, Milwaukee, Wis. Humidifier will diffuse up to 20 gallons of water in 24 hours with 5-pound pressure. Large model diffuses up to 100 gallons. It prevents air from entering the system when steam pressure drops below atmospheric pressure point and shuts off when condensate cannot return fast enough to prevent overflowing. Surplus condensate is returned to supply line against higher pressure. Simple to install.

TRIP ACTION CIRCUIT BREAKER I M P R O V E D Quicklag circuit breakers, developed by Westinghouse Electric Corp., Pittsburgh, Pa., in-

corporate a new tripping action which combines the inverse time limit characteristics of Bimetal thermal action on overloads with the operating speed of magnetic trip action on short circuits. They are available in single or double pole, 10 to 50 amps, 125 to 125/250 volts

REPLACEMENT DOOR



COMPLETE pre-fabricated vertical lift door that can be installed by mounting on outside wall of building thus eliminating interference with overhead pipes, wires, etc., is announced by Fleming Steel Co., New Castle, Pa. It is recommended where door space is inadequate or for replacements. Upper and lower sections travelling vertically are synchronized through gears to open and close fully at the same instant either by manual operation or electric motor. Available in single, double, triple or quadruple sections for any size door area.

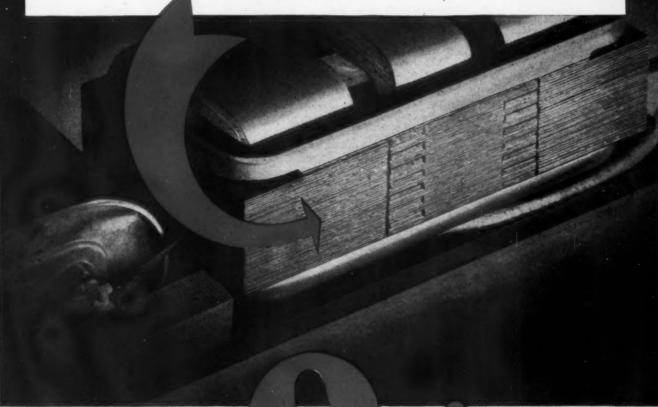
(Please turn to page 154)

SPECIAL CEMENT KEEPS DOWN HUM

IN G-E FLUORESCENT BALLASTS

The hum in fluorescent lamp ballasts is produced mainly by the 60-cycle vibration of the thin layers of iron in the core of the transformer. To keep this hum down to the lowest possible level—keep it there for the life of the fixture-G.E. takes

special precautions. First, transformer core laminations are firmly bound by heavy-duty steel clamps. Then the core is thoroughly coated with a hard-setting cement specially adapted to the job. When this cement sets, the core becomes a solid structure, with all air gaps permanently sealed. Finally the assembled ballast is filled with compound which serves to further dampen hum, as well as to carry off heat.



We realize you are not getting all the G-E ballasts you need as quickly as you want them; but please remember that we are doing our utmost to increase production, despite continuing material shortages.

> BALLASTS LAMPS STARTERS CABLE LAMPHOLDERS for

DEPENDABILITY in fluorescent lighting

by



Yes, the quiet operation of General Electric ballasts can be an important factor in making friends for your fluorescent fixtures. So can their ability to ensure rated lamp life and light output. Apparatus Dept., General Electric Company, Schenectady 5, N. Y.



GENERAL ELECTRIC

Abrasive Products



Grinding wheels of ALUNDUM*, CRYSTOLON* and diamond abrasives; discs and segments; bricks, sticks and hones; mounted points; abrasives for polishing, lapping, tumbling and pressure blasting; pulpstones.

Grinding and Lapping Machines



A varied line of machines for production-precision grinding and lapping and for the tool room — including special machines for crankshafts, camshafts, rolls and car wheels.

Refractories



High temperature refractories—grain, cement, bricks, plates, tile, tubes—for metal melting, heat treating and enameling; for ceramic kilns; for boiler fumaces and gas generators; for chemical processes; refractory laboratory ware; catalyst carriers; porous plates and tubes.

Norbide*



Trade-mark for Norton Boron Carbide
— the hardest material made by man.
Available as an abrasive for grinding
and lapping; in molded products for
extreme resistance to wear — especially effective for precision gage
anvils and contact points; and for
metallurgical use.

Norton Floors



ALUNDUM* Floor and Stair Tile, ALUNDUM* Ceramic Mosaic Tile and ALUNDUM* Aggregates to provide permanently non-slip (wet or dry) and extremely wear-resisting floor and stair surfaces.

Labeling Machines



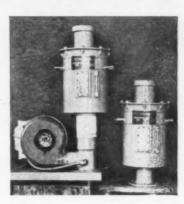
Single and duplex automatic labeling machines for applying labels and foil to beverage bottles and food, cosmetic and drug containers.

Oilstones and Coated Abrasives



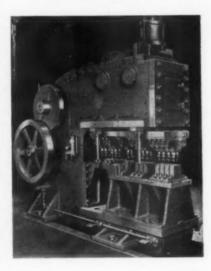
Sharpening stones and abrasive papers and doth for every use of industry and the home craftsman. Products of the Norton Behr-Manning Division, Troy, New York.

STORAGE TANK BREATHERS



LINE of breathers especially designed for industrial storage tanks, is announced by Pittsburgh Lectrodryer Corp., Pittsburgh, Pa. Units can be mounted over tank's vent or piped to it. Incoming air is thoroughly dried. Breathers are equipped with a color indicator for determining when they are in need of reactivation and when reactivation is complete. Breathers protect contents against pollution and spoilage by atmospheric moisture.

SIZE 12 TOGGLE PUNCH



SIZE 12 Toggle Machine, designed to handle a wide range of structural steel shapes and sections for both flange and web punching in one handling, is announced by Beatty Machine & Mfg. Co., Hammond, Ind. Special tools covering a wide variety of punching requirements can be applied on this machine; die space can be modified if wider ram is required. Punching tools with double-gag punching and die holders provide two diameters on each pitch line, saving time and eliminating re-handling, as the two diameter holes can be punched on same pitch line without changing tools. Control levers for duplicate punching are provided. Machine is fast, occupies small floor area. Die space 36"; stroke 1¾"; throat 25"; capacity 137 tons; motor required 71/2 h.p.

(Please turn to page 156)



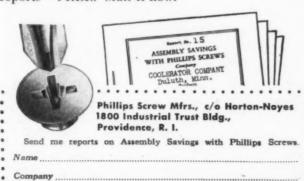
Highlights from a comprehensive report by independent investigator of James O. Peck Co.—one of their studies of assembly savings made with Phillips Screws in leading plants...

• "WE made an important saving we hadn't counted on when we switched to Phillips Recessed Head Screws," said the foreman of Coolerator's assembly line. "Instead of the expensively long period usually required to train operators to drive slotted screws, we found that new people could start driving Phillips Screws with a few simple instructions. Since we use about 125 Phillips Screws in every Coolerator and our daily production is 300, there isn't much time for teaching anyone how to drive a screw.

"FASIER TO USE, especially in awkward or blind applications... like fastening the black base to the bottom of the unit or attaching the ice container to the box. You have practically no control over slotted screws, while Phillips Screws are easy to line up.

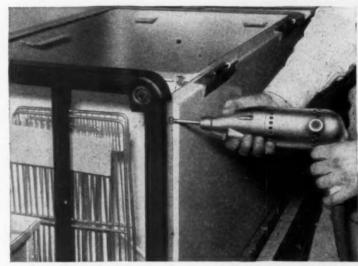
"STOPPED PANEL DAMAGE and burring of heads. Assembly people used to almost write their names on the sides of the units when a slotted screw driver slipped. That cost real money...for disassembly, refinishing and reassembly, not to mention the disruption of the assembly line. Phillips Screws ended slips.

THE WHOLE STORY of this and other assembly studies in key plants...covering metal, wood and plastic products...will suggest similar savings to any production man. This coupon will bring you these reports—FREE. Mail it now.





Here's a tricky bit of "blind" driving ... through a small hole in the ice unit. With Phillips Screws, locating and driving is easier.



If ordinary slotted screws were used in fastening this black enameled base, inevitable driver slippage would do costly damage to the adjacent panels.

PHILLIPS Recessed Heard SCREWS

Wood Screws • Machine Screws • Self-tapping Screws • Stove Bolts

American Serew Co.
Central Serew Co.
Continental Serew Co.
Corbin Serew Div. of
American Hdwe. Corp.
The H. M. Harper Co.
International Serew Co.
Lamson & Sessions Co.
Milford Rivet and

23 SOURCES

National Lock Co.
National Screw & Mfg. Co.

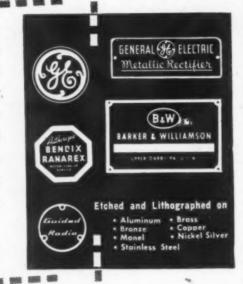
National Lock Co.
National Screw & Mfg. Co.
New England Screw Co.
Parker-Kalon Corporation
Pawtucket Screw Co.
Pheoli Manufacturing Co.

Reading Screw Co.
Russell Burdsall & Ward
Bolt & Nut Co.
Scovill Manufacturing Co.
Shakeproof Inc.
The Southington Hardware Mfg. Co.
The Steel Company of Canada, Ltd.
Sterling Bolt Co.
Stronghold Screw Products, Inc.
Wolverine Bolt Company

Reputation

Your name and trademark make a better impression via Premier Nameplates! Quality through and through, Premier Products give your product eye - catching remembrance value . . . make it stand out from competition at the point of sale.

WRITE FOR BULLETIN



PREMIER METAL ETCHING COMPANY

21-09 44th Avenue, Long Island City 1, N. Y.

Quality Products for Over 35 Years

Model HO-7400—a 4" C. D. unit; ideal for conveyor drive or other materials handling applications. Note double row ball bearings, rigidity of housing design, plenty of cooling area.





Let us send you a table of ratings of Standard Cone-Drive Reducers. Check it against any other make.

You can't go wrong on Cone-Drive reducers. They give you greater ruggedness, increased load capacity, smaller size, high thermal efficiency, long trouble-free life. Made in pinion-under and pinion-over, gearshaft vertical or horizontal models. Available with water-cooling and extended shafts.

Write for Bulletin, giving approximate horsepower or torque and ratio required.

CONE-DRIVE DIVISION

MICHIGAN TOOL COMPANY

7171 E. McNichols Road . Detroit 12, U.S. A.

AUTOMATIC WIRE STRIPPER



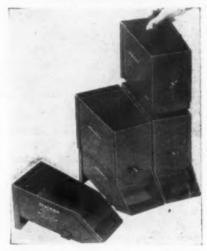
NEW automatic stripped for solid or stranded copper wires ranging from No. 10 to No. 22 wire is announced by Holub Industries, Inc., Sycamore, Ill. Tool clamps wire, cuts insulation and strips it in one operation. Blades are renewable. Standard model for solid wires available in 5 sizes. Automatic model with lever to prevent jamming of wires and strands, available in 6 sizes for both stranded and solid wires. Literature available.

ADAPTABLE BUFFING COMPOUND APPLICATOR

BUFFING compound applicator, made by George L. Nankervis Co., 5442 Second Blvd., Detroit 2, Mich., has

an intermitent feed control operating at the rate of 14 strokes per minute which affords a feed range of from .0015" to .015" per stroke. It can be mounted on any automatic machine. It is driven by a totally enclosed geared-head motor, available for 110, 220, or 440 volts. This automatic method of applying the compound is said to effect a saving in compound, improve the quality and uniformity of the work, and speed up the job.

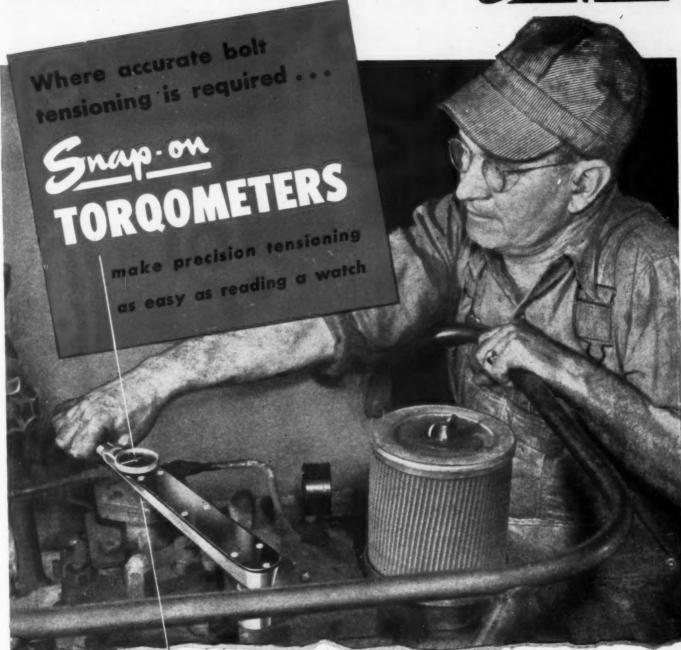
ADJUSTABLE HOPPER



REGULATING the flow of small parts in assembly bins is made possible with the new sliding-front hoppers announced by Stackbin Corp., Providence, R. I. Hoppers will prevent overflows or jamming of parts and provide regulated flow of parts according to sizes and weights. Opening can be regulated for small or large parts. Slide is held in position by wing nut.

(Please turn to page 158)

For greater accuracy ... specify Snap-on



THERE is only one way to correctly tension a stud or bolt . . . and that way is to know the tension as the stud or bolt is tightened. Inaccuracies cause dangerous distortion . . . waste power . . . promote wear . . . and often cause mechanical failure.

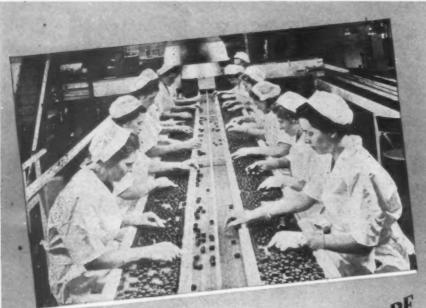
Play safe! Specify a Snap-on Torqometer! Eliminate all "guesswork" tightening. Even your inexperienced workers can pull to specified tension every time . . . because they can see the torque reading as pressure is applied. As a result, they work swiftly, accurately, and confidently.

Snap-on Torqometers are available in 15 models . . . from

zero to 30 in. lbs., up to 2,000 ft. lbs. torque capacity. 39 factory branches in key cities throughout America. Write for location of nearest branch.



SNAP-ON TOOLS CORPORATION . 8048-D 28th Avenue, Kenosha, Wisconsin



With Food Processors Everywhere OK. Order Kanry-Tex.

have for years learned to say: "O.K." (Order Kanry-Tex) for specific reasons:

O.K. ORDER KANRY-TEX for easy cleansing

O.K. ORDER KANRY-TEX for no odor or taste

O.K. ORDER KANRY-TEX for resistance to
moisture, fats, ails

O.K. ORDER KANRY-TEX for long wear and
economy

We'd like to tell you more in detail about the advantages of GLOBE KANRY-TEX. We're sure you'll be interested for many practical reasons. Write today to your mill-supply house—or direct to us.

Other GLOBE
Quality Beltings:
GELLULOSE-COATED
WHITE WOVEN COTTON
ENDLESS WOVEN

GLOBE WOVEN
BELTING CO.
1398 CLINTON ST., BUFFALO 6, N.Y.



COMBINATION VISE-DRILL



PORTABLE vise and drill combination tool, the Twin-Tool, is announced by W. H. Howland, 2533 E. 73d St., Chicago 49, Ill. Tools can be used individually or in combination. Vise swings on

vertical axis that permits turning to any angle, has 2 sets of integral chill-hard-ened pipe jaws for handling pipe from \%"-5". Jaws have detachable plates. Slow-speed drill has 1000 lbs. pressure, can be used for many applications. In combination, units can be used as horizontal or vertical drill press.

ECONOMICAL EFFECTIVE SLUDGE SOLVENT

O'B-OIL, a new sludge solvent developed by O'Brien Industries, 101 City Ave., Bala - Cynwyd, Pa., is said to

bring under control the gums, resins, sludge and water emulsions which accumulate in fuel and diesel oils during transportation and storage. It will not corrode tanks or equipment when mixed with fuel oil, and contains no caustic socia. Ingredients are combustible.

PORTABLE ELECTRIC HEATER

PORTABLE electric heater that features improved fanforced instant heat is announced by Acme Brands, Inc., 644 Broadway, New York 12, N. Y. Unit is rated at 120 volts, 1320 watts, and operates



on a-c. It is said to heat up in 30 seconds and bring temperature of average size room from 50° to 70° in 18½ minutes. It gives constant air circulation for maximum heating return and complies with safety requirements of National Board of Fire Underwriters. Heating elements are enclosed in sheet metal protective casing with heavy chrome plated grill and handle.

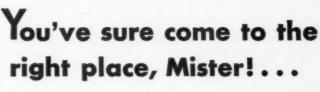
DUMP-TRAILER TRUCK IMPROVED

I M PROVEMENTS in the design and construction of the "Phil-Dump" trailer truck are announced by Phillips Mine and Mill

Supply Co., Pittsburgh, Pa. Trailer is equipped with pneumatic tires and optional center caster for greater maneuverability, ease in hauling, faster haulage and dumping. Construction includes rollover type body, chain release, quick return to normal position. It is made of welded steel construction and equipped with Timken bearings. One cubic yard capacity.

(Please turn to page 160)





A carload of brass lipstick containers? A quantity of copper rivets? A mile of fine, gleaming brass pipe?

Yes,' Mister, see Chase, the Nation's Headquarters for Copper and Brass.

A nationwide network of 20 Chase warehouses makes it simple for you to place orders. Small quantities may be filled from warehouse stock. Larger orders are passed on to a big Chase mill or factory.

We still can't fill all orders yet... but our assistance in planning the use of copper and brass... our suggestions on ordering fabricated parts... our advice on new alloys... are yours for the asking. Just get in touch with your nearest Chase warehouse. We'll be glad to help. Chase Brass & Copper Co. Incorporated, Waterbury 91, Conn. A Subsidiary of Kennecott Copper Corporation.





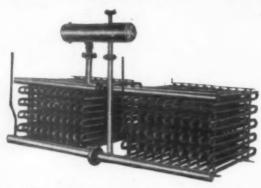
Waterbury 91, Connecticut SUBSIDIARY OF KENNECOTT COPPER CORPORATION

This is the Chase Network - handiest way to buy brass

- INCORPORATED

ALBANY ATLANTA BALTIMORE BOSTON CHICAGO CINCINNATI CLEVELAND DETROIT HOUSTON INDIANAPOLIS JACKSONVILLET KANSAS CITY, MO. LOS ANGELES MILWAUKEE
MINNEAPOLIS NEWARK NEW ORLEANS NEW YORK PHILADELPHIA PITTSBURGH PROVIDENCE ROCHESTERT SAN FRANCISCO SEATTLE ST. LOUIS WASHINGTON (1 Indicates Safes Office Only)

IT MAY BE BIG ... IT MAY BE SMALL



Regardless of the size and type of bend required in your installation. Swan specialized experience in bending, coiling and fabrication of piping and tubing offers you skilled engineering service, precise manufacturing facilities, and economical handling of the job from blueprint to on-time delivery.

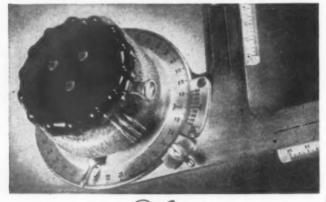
We are prepared to submit designs, specifications and estimates on intricate coils and bends in any of the standard metals or alloys.



SWAN ENGINEERING CO., Inc.

12-58 Nelson Street Bloomfield, N.J.

Refinements of note IN A MACHINE OF PROVEN PRECISION



DRAFTING MACHINE Standard Equipment

- protection and appearance additions.
- Band covers of steel provide dust
 Brake efficiency super smooth action-ideal on inclined boards.

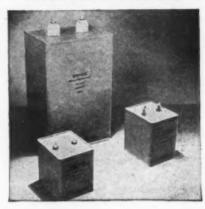


• Color-Restful blue-green and brushed chrome add beauty to machine efficiency.

The Frederick Post Company
3650 NORTH AVONDALE AVE., CHICAGO 18, ILLINOIS
DETROIT - HOUSTON - CHICAGO - LOS ANGELES - MILWAUKEE

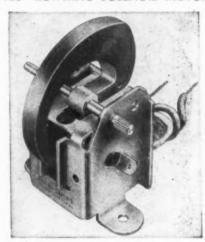
INSTRUMENTS . EQUIPMENT AND MATERIAL FOR THE ARCHITECT AND ENGINEER

PHOTOFLASH, ENERGY STORAGE CAPACITOR APPLICATIONS



PHOTOFLASH technical bulletin 3205 issued by Sprague Electric Co., North Adams, Mass., outlines develop-ment of flash photography, deals with present problems and their solutions, includes specifications and data for Sprague Photoflash Energy-Storage Capacitors, shown in illustration. Capacitors are compact, light-weight, and adaptable to portable equipment. Charges are said to hold over long periods, and leakage resistance measured at +25° C. after a two minute charge at 180 volts d-c is not less than 20,000 megohm-microfarads.

180° ROTATING SOLENOID MOTOR

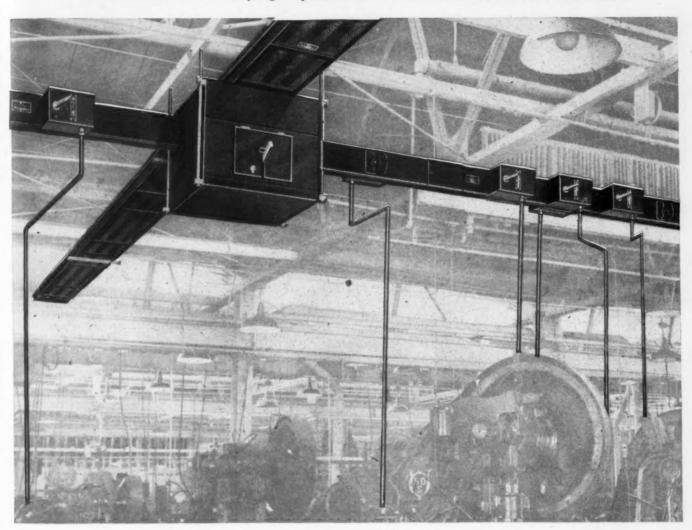


ROTONOID, a power device which operates as a solenoid except that it rotates through 180°, thereby producing torque instead of a thrust and consequently eliminates the necessity of connecting linkages, is announced by Radio Condenser Co., Camden, N. J. Originally designed for the operation of radio tuning units, it has a widespread application in many fields ranging from electro magnetic valves to adding and calculating machinery. Entire unit is selfcontained. Dimensions approximately 2½" by 25%" by 3½". Weight 10 ounces. Standard units have 16 oz. torque and can be operated continuously at 20 cycles per minute without exceeding a safe temperature. They can be used at 60 cycles per minute for periods up to 12 minutes on 115 volt, 60 cycle a-c.

(Please turn to page 162)

Save tomorrow's costs - today

Meet today's needs—and match tomorrow's—with BullDog BUStribution Systems
... BUStribution DUCT for plug-in power and Ventilated Lo-X Duct for feeder lines.



BullDog Lo-X Feeder Duct blocks two blows at plant efficiency—voltage drop and temperature rise.

When voltage drop pinches your power supply, output of motors and lights must suffer. And when temperature rise reaches dangerous heights, heat takes its toll on the life of your distribution system.

But BullDog Lo-X licks both of these problems. Unique design and arrangement of the bus bars, plus adequate ventilation, insures maximum conductivity and rapid dissipation of heat.

Economy doesn't stop there, either. Rugged construction cuts maintenance costs, and when major production changes require alterations of your feeder lines, BullDog Lo-X can be dismantled, moved and reinstalled with complete re-use of all materials.

BullDog Plug-In BUStribution DUCT meets the challenge of change.

Machines can be moved and be back in production with minimum losses in time and in effort, thanks to the high flexibility of this modern branch circuit system.

Every ten-foot section of Plug-In BUStribution DUCT has ten convenient outlets. That means no re-wiring, no addition of fixed outlets. Electricians need only raise the plug to the nearest duct opening, snap its contact fingers over the bus bars and bolt the plug to the casing. The whole job can be done in a matter of minutes and without interruptions for the rest of the line.

Like all BullDog Bus Duct systems, BUStribution DUCT is made in prefabricated, standardized sections for easy installation and for dismantling and reinstallation without scrapping any parts.

Call a BullDog Field Engineer. He'll show you installations of these two modern systems in a plant close by. Or, write BullDog direct for detailed folders.



BULLDOG





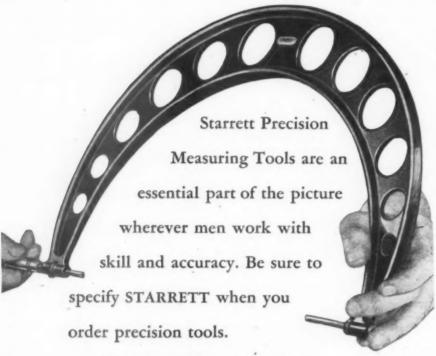
BullDog manufactures Vacu-Break Safety Switches — SafToFuse Panelboards — Superba and Rocker Type Lighting Panels — Switchboards — Circuit Master Breakers — "Lo-X" Feeder BUStribution DUCT — "Plug-in" Type BUStribution DUCT—Universal Trol-E-Duct for flexible lighting—Industrial Trol-E-Duct for portable tools, cranes, hoists.

Detroit 32, Mich. Field Offices In All Principal Cities. In Canada: BullDog Electric Products of Canada, Ltd., Toronto.



TO COMPLETE THIS PICTURE OF PRECISION, ADD A

STARRETT MICROMETER



Buy through your distributor.

THE L. S. STARRETT CO. · ATHOL · MASSACHUSETTS · U. S. A. World's Greatest Toolmakers

STARRETT

PRECISION TOOLS . DIAL INDICATORS . STEEL TAPES . GROUND PLAT STOCK
NACKSAWS . BAND SAWS FOR CUTTING METAL, WOOD, PLASTICS

FORGED BRASS FITTINGS



IMPROVED brass fittings for connecting copper, steel, aluminum and other thin-wall metal tubing, with forged bodies on elbows and tees and Dryseal pipe threads on pipe thread ends, are announced by Imperial Brass Mfg. Co., 1200 W. Harrison St. Chicago, Ill. Bulletin No. 349 available.

GAS-FIRED CRUCIBLE FURNACES

TWO new series of gas-fired crucible furnaces are announced by Eclipse Fuel Engineering Co., Rockford, Ill.

The "RB" series is designed for heavy foundry production in the melting of brass, bronze, aluminum and other alloys. The "SB" series, planned for similar purposes, incorporates the "HE" entrainment burner, which maintains a constant air-gas ratio over a wide turn-down range, permits a fast melt-down when required, maintains low input when "holding" temperature is needed, and has a swing-back cover.

PULVERIZING MACHINE



NEW No. 8 Mikro-Atomizer, capable of producing powders in the range of 1 to 25 microns (under 325 mesh) in large production quantities is announced by Pulverizing Machinery Co., Chatham Road, Summit, N. J. This mechanical screenless pulverizer of approximately 8' x 7' x 5½' dimensions (without cyclone or piping) uses a 75 h.p. motor and is applicable to tonnage operations, and obtains capacities from 2,000 to 8,000 lbs. per hour. Guaranteed control of particle size is offered. Operating temperature seldom exceeds 115° F. Rotary air lock for discharging material into collector is provided. Parts which contact material are highly finished for quick cleaning. Stainless steel construction of rotating members eliminates corrosion and contamination.

(Please turn to page 164)



HOW TO KEEP AN EYE ON COSTS

A developed by Cities Service research is helping industry save thousands of dollars in power and heat.

A typical example is a recent checkup of the furnace gases in a boiler at a plant in Niles, Michigan. This unique device, the Cities Service Heat Prover, uncovered a glaring example of preventable waste in just a few minutes. Fuel loss for this boiler amounted to almost 17%...and smokestack temperatures were found to be abnormally high with attendant loss of heating efficiency.

Experimentation with the stoker operation showed that an uneven fire bed caused holes to burn through down to the edges of the grate. This permitted excess air to circulate in the combustion chamber without mixing with the gases from the burning coal.

By covering the grate evenly with coal to eliminate these holes, and firing every 30 minutes, the waste was eliminated—resulting in a saving of 3,000 lbs. of coal per day.

The patented Heat Prover is portable and flexible in application. Serving industry like a magic eye, it searches out waste wherever combustion is involved—in furnaces, oil burners and heat-treating furnaces—in aircraft engines while in flight and in Diesel and jet engines.

If you would like to know exactly how efficiently YOUR equipment is harnessing fuel energy, the Cities Service Heat Prover can tell you. Just mail the coupon below for a free demonstration.

. Y., ROOM 65	
he Cities Service Heat Prover.	
	*
STATE	***************************************
	he Cities Service Heat Prover

Cities Service means Great Service



Cities Service Oil Co. NEW YORK - CHICAGO

Arkansas Fuel Oil Co. SHREVEPORT, LA.

the right line the right blade

THE Star line is the right line because it's really complete. At your Star supplier you'll find a blade for every job a hack saw or band saw can do. In addition, you'll get the right blade because your Star supplier is backed by a complete line of blades that have proved faster, longer wearing, in cutting metals, plastics, and other non-metallics. So, add it up any way you like, Star blades, frames and band saws, amount to more economy, more convenience, and more satisfaction. Yes, you can't go wrong when you see your Star supplier — he has the right line, the right saw for you. It's Star.

This booklet is packed with facts on saw selection, use, care—prices, too. Get your copy from your Star supplier . free.









DRILL CUTS BOTH HARD AND SOFT METALS

NEW drill, claimed to cut through intensely hard and very soft metals with equal facility, and designed for precision drilling and reaming, is announced by Enesay Tool Co., 2240 Sepulveda Blvd., Los Angeles 23, Calif. It is said to drill through steel hardened to 68 Rockwell C and to make possible fast, precision drilling on metals so hard that their handling was previously considered impractical. It is constructed of new alloy which permits penetration of hardened steel without impairing metallurgical properties of the metal. Tensile strength is more than 45,000 psi. Drill is available in all standard and special sizes. Literature on request.

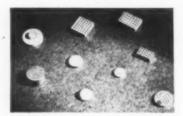
PORTABLE DUST COLLECTOR

PORTABLE dust collector, known as the Dustex Dust Collector, is announced by Dust Company, Filter 1753 West Lake Street, Chicago, 12, III. Collector involves new principle whereby a



high percentage of dust is separated at the point of intake and deposited into a retaining pan at the bottom of the unit. Remaining fine dust is collected in the fifteen 36" filter tubes at the top of the unit. A static pressure of 61/2" is maintained constantly. Unit comes in one size only: 4 feet high, approximately 2 feet square. It is equipped with 11/2 hp 3phase 220-440 volt motor and can handle two 4" branch pipes. It is especially recommended for use with buffing, grinding and polishing machines.

NEW SILVER-MOLYBDENUM ALLOY



DEVELOPMENT of a versatile new silver-molybdenum alloy, "Callite Type SM", is announced by the Callite Tungsten Corp., Union City, N.J. Alloy is said to be a high conductivity facing material suitable for applications requiring high current where pitting, sticking or welding of contacts occurs. It is available in standard and special shapes. Bulletin 158 on request.

(Please turn to page 166)

C. L. AMOS COAL CO.

General Office Syracuse, N. Y. Telephone LD59

Shippers of Fairmont-Pittsburgh Seam

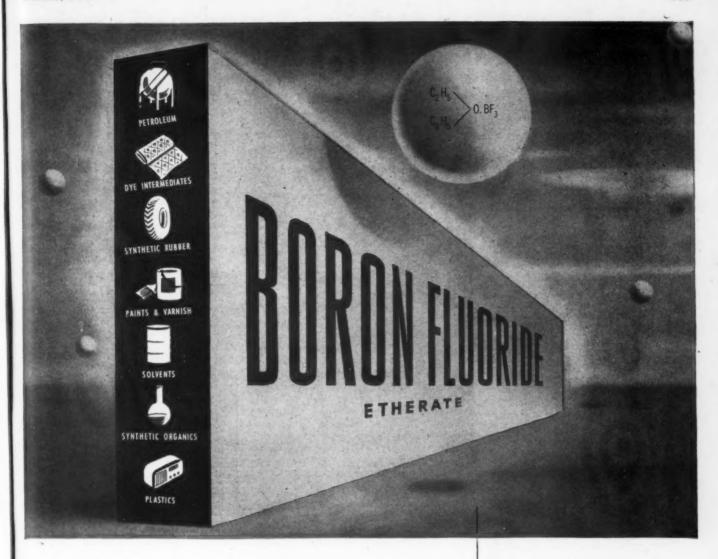
Central Pennsylvania High and Low Volatile **BITUMINOUS COAL**

> Branch Offices in Baltimore, Md. Cleveland, Ohio Philadelphia, Pa. Clarksburg, W. Va. Albany and Canton, N. Y. Clarion and Philipsburg, Pa.

C. L. Amos Goal Co. (Canada) Ltd. Montreal, P. 2.







Do you need this

ERSATILE NEW CATALYST?

From petroleum to plastics synthetic organics to solvents, Boron Fluoride Etherate is a valuable catalytic chemical with a far-reaching range of uses.

Some of the principal reactions catalyzed by this new General Chemical Company fluorine compound are listed at the right. Others are covered in reference after reference in technical literature containing extensive data on the reactions catalyzed by BF₃ as well as by its complexes with other organic molecules. Repeatedly, mention is made of its superiority to other catalysts since reactions are moderated and fewer undesirable by-products result.

Boron Fluoride Etherate is commercially available in drums. Thus, you can investigate it for immediate application in your development or production program, confident that your needs for full scale manufacturing use can be met.

For further information, write to General Chemical Company, Fluorine Division, 40 Rector Street, New York 6, N. Y An outline of your proposed application for this new catalyst will enable our technical staff to work with you toward a solution of your problem.

GENERAL CHEMICAL COMPANY

40 RECTOR STREET . NEW YORK 6, N. Y.

Sales and Technical Service Offices: Albany Allanta Baltimore
Birmingham Boston Bridgeport Buffalo Charlotte Chicago
Cleveland Denver Detroit Houston Kanasa City Los Angeles
Minneapolis New York Philadelphia Pittsburgh Providence
San Francisco Seattle St. Louis Wenatchee & Yakima (Wash.)
Im Wisconsin: General Chemical Wisconsin Corporation, Milwaukec Wis.
In Canada: The Nichols Chemical Company, Limited
Montreal Teronte Vancouver



Physical Properties



Molecular Weight: 141.9 Melting Point: Less than -60°C Boiling Point: 125°C eific Gravity: 1.14 at 25°C %BF3: 47.8% min.

Some of the Principal Reactions Catalyzed by BF₃

- 1. Polymerization of unsaturated compounds such as olefins, diolefins, vinyl ethers, fatty oils, and terpenes. The products may be solid polymers useful as plastics or liq-uids as in the bodying of drying oils for paints and varnishes.
- 2. Condensation of aromatic nuclei with olefins and diolefins, paraffins and olefins, and aromatic nuclei or olefins with acids.
- 3. As a cyclizing agent for rubber.
- 4. As an esterification catalyst.
- As a catalyst in the synthesis of aliphatic acids from alcohols and carbon monoxide.
- 6. As a promoter and dehydrating agent in the sulfonation and nitra-tion of aromatic compounds.

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CESCO EQUIPMENT

• CESCO safety equipment takes a lot of punishment and comes out with remarkable service records. This durability is based primarily on the use of quality materials and the application of quality workmanship in the making of CESCO products.



• CESCO equipment is outstanding in durability, safety and comfort—as represented by: A) No. 94 Respirator, B) Acitex Hood, C) No. 749 Face Shield, and D) No. 527 Cup Goggle. Write today for complete information and prices.

CHICAGO EYE SHIELD COMPANY



STICK-FORM SOLDERING FLUX

I M P R O V E D stick-form soldering flux, called Flux-Stik, has been introduced by Lake Chemical Co., 607

607 N. Western Ave., Chicago 12. Stickform eliminates containers and brush and stick applicators, No cleaning of metal is necessary. It is non-running and can be applied to hot or cold metal. Uses include sweat joints of copper or brass tubing, manifolds, traps, elbows, piping, sheet metal, cabinet work, refrigeration and heating coils, etc. Flux-Stik is non-acid.

INSULATED PIGTAIL SPLICE



PLASTI-GRIP Closed-End Connector, announced by Aircraft-Marine Products, Inc., 1593-T North 4th St., Harrisburg, Pa., provides a permanent, vibration-proof, insulated pigtail splice. Insulating sleeve extends beyond the metal barrel of the connector, completely covering and protecting the ends of the wire insulation. No soldering, wire twisting or taping necessary. Small size of connector is of advantage where space is restricted, such as in electric clocks, etc.

REVERSING MULTIPOLE SEQUENCE RELAY

NEW reversing, separate - circuit ratchet - operated multipole sequence relay, Type 96AFA, which is adaptable

to numerous applications involving the addition and subtraction of loads, as in switching in or out individual units from a bank of capacitors, is introduced by Struthers-Dunn, Inc., 146-150 North 13th St., Philadelphia, Pa. Standard ratchets supplied have 12 teeth. Thus 12 contacts may be obtained in one sequence, with no more than 6 separate contacts between each pair of bearing supports. Operating coils are for a-c use only. Engineering Data Section #4681 available.

TESTING MACHINE



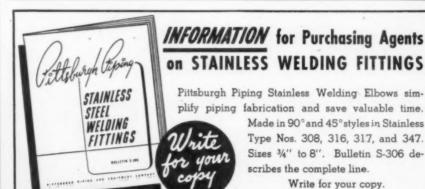
TRANSVERSE Testing Machine with a capacity up to 10,000 pounds, hydraulically operated (Model TR-1) is announced by Steel City Testing Laboratories, 8843 Livernois, Detroit 4, Mich. Machine is highly sensitive and is adaptable to making transverse tests with equal accuracy and efficiency on various specimens up to its full capacity of 10,000 lbs. Gauges may be calibrated in kilogram loads if desired. Maximum span 24"; 4" opening; floor space 26" x 20".

SOLDERLESS CONNECTIONS



TOOLS and terminals for attaching solderless connections to solid wire or a combination of solid and stranded wire, or stranded wire, are announced by Air-Craft Marine Products, Inc., 1593 T North 4th St., Harrisburg, Pa. Connection made by the crimping operation is said to withstand vibration and torsional twist. Crimped shape locates solid conductor in a central position in terminal barrel. Terminals are all copper, electro-tinned. Terminals and tools are available for wire sizes 22 to 10 inclusive. Samples and data sent upon re-

(Please turn to page 168)



PITTSBURGH PIPING & EQUIPMENT CO. 10 FORTY-THIRD ST., PITTSBURGH, PA.

pecified Tolerance ± *, Test Accuracy ± ?

s comparatively easy to lay down close tolere specifications for springs. But can you tell are getting them?

trange as it may seem, springs are often ored to tolerances beyond the purchaser's capacor means for inspection.

Certain types of inspection equipment are acate but not nearly fast enough for checking equantities of springs. Others are neither fast accurate. And it is a matter of record that some

plants use equipment which has all the appearance, the sensitivity and the speed of fish scales . . . and old-fashioned fish scales at that.

If you must insist on springs with close tolerances, make sure you provide your inspectors with equipment for testing them quickly and adequately. Or order springs from Hunter where you get the tolerance you pay for . . . guaranteed by inspection devices of amazing accuracy and speed.

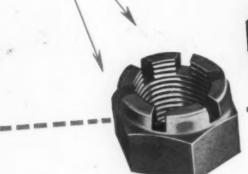
*Often next to nothing.





CASTELLATED NUTS

In Triplex Quality





Full Line of Cap Screws



Now you can get Castellated Nuts in TRIPLEX quality in all sizes from $\frac{1}{4}$ " to $1\frac{1}{4}$ ".

And don't forget that TRIPLEX Cap Screws, famous for toughness, are made in most standard sizes up to 1" in diameter and up to 8" in length. Made in Flat, Hex, Fillister, and Button Heads.

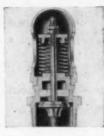
A turn to TRIPLEX is always a turn for the better. Write for new, illustrated catalog.

THE TRIPLEX SCREW CO.

5331 Grant Avenue • Cleveland 5, Ohio

TREPLEX THREADED
FASTENERS

VACUUM BREAKER



EXTRA protection for jacketed kettles, closed tanks, hot water generator coils and heating units is provided by the Schade No. 1724 vacuum breaker, distributed by Associated Valve and

Engineering Co., Chicago, Ill. The vacuum breaker is protected by a housing enclosing the spring, preventing alteration of the setting through tampering or accidental bumps. It is available in six sizes, from ½" pipe thread connection and an overall height of 4½" to 2" pipe thread connection and an overall height of 6½".

RETRACTABLE KNURLING TOOL



CAM-action retractable knurling tool, manufactured by Universal Vise & Tool Co., Parma, Mich., cuts cost, saves time and simplifies difficult knurling jobs. It is adaptable to any engine or turret lathe. Its advantages include ability to rapidly knurl long, thin work, clear threads, pilots and other sections of the same diameter as the piece being knurled, self-locking retracting mechanism and instant adjustability to any diameter up to 2".

HEAVY DUTY CONTOUR SANDER



SAND-O-FLEX model 6500 heavy duty industrial model contour sander, designed for finishing and sanding of metals, wood, plastics, rubber, is announced by Sand-O-Flex Corp., Los Ange-

les, Calif. This sander may be used on any rotating shaft. It has 12 brush-backed abrasive strips which are fed out as needed from an internal cartridge. It is adaptable to a flexible shaft, buffing and polishing lathe, electric motor shaft. drill press, woodworking or metalworking lathe or mandril.

(Please turn to page 170)



GO-NO-GO gaging tells only if workpiece is off size

USE DIAL INDICATORS FOR INSPECTING

ANGLE . CONCENTRICITY

DEPTH . HEIGHT

CURVATURE . LENGTH

INSIDE DIAMETER

LOCATION . THICKNESS

OUTSIDE DIAMETER

SQUARENESS . THREAD

WIDTH • AND COMBINATIONS

OF DIMENSIONS



Federal Dial Indicators show where and how much

THE BLIND SPOT

in old-fashioned gaging methods

THE conventional "go — no-go" gage serves only one purpose — it cuts down the passing of defective workpieces. It does nothing to reduce the number of rejects — nor to improve the quality or quantity of output.

Up-to-date gaging methods tell you the what, where and how of your workpieces. You not only cut inspection costs; you also cut production costs and get more production of a better quality.

You gain definitely more by using Federal Dial Indicators because: (1) you instantly see your dimensions — you don't feel for them; (2) you actually see the amount of the variation. You know exactly how much and which way each workpiece varies from its specifications.

When used constructively at production as well as at inspection, Federal Dial Indicators tell you much more than the yes and no answers of conventional gages. They tell you when and where production is tending to produce unsatisfactory work so that you can adjust the machine before this happens. And they are, of course, faster, positive and convenient for

checking tools and gages and in your laboratory.

Day-in and day-out use demonstrates the durable accuracy of these Dial Indicators. Precisely cut gears, precisely set jewel bearings and parts, plus the *low-friction* of the movement, provide an exceptional sensitivity that enables faithful magnification regardless of the intensity or the degree of the change in dimensions.

The Cushioned Movement—specially designed to withstand repeated shocks—can be had on all but the smaller sizes of Federal Dial Indicators. The physical appearance is the same as that of the regular models. This shockproof mechanism has proved its merit under competitive conditions. Oil film on the spindle does not affect it. It has repeatedly demonstrated its ability to endure when others failed.

You can obtain practically any dial graduation or other physical requirement consistent with efficient Dial Indicator performance from Federal. Let a Field Service man consult with you on your Indicator application requirements... Write us for illustrated Bulletin No. 32



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FEDERAL

FEDERAL PRODUCTS CORPORATION
1144 Eddy St., Providence 1, R. I.

● Dimensional Dial Indicators and Indicating Gages — mechanical, electronic, air, multidimensional • Automatic Sorting • Dimensional Machine Control • Combinations of these methods. For the Mechanical, Textile, Rubber, Paper and all industries requiring dimensional a curacy.



STRAUBEL towels and tissues solve your washroom problems at minimum expense!

STRONG WHEN WET

A THRIFTY CHOICE ...
YOU CUT WASTE WITH THIS MORE ABSORBENT LINE

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DISTRIBUTED THROUGH PAPER MERCHANTS ONLY

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TOWELS & TISSUE

STRAUBEL PAPER CO. . GREEN BAY . WIS.

GAS METER VALVE



"NO Drag" valves, said to eliminate problems encountered in gas meter valve operation, are announced by Morganite, Inc., 3304 48th Ave., Long Island City 1, N.Y. Features include self-lubrication, dimensional stability and immunity to chemical attack. Valves are made of carbon-graphite and are said to eliminate "DPG" meters due to valve freezing or broken wrist pins. Literature available.

POWDERED SOAP AND GREASE REMOVER SOPEC is a new industrial powdered hand soap and grease remover developed by Speco, Inc., 3142 Superior

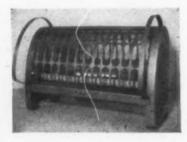
Ave., Cleveland, Ohio. It is said to combat industrial dermatitis and to be hygienically safe, non-abrasive, soothing, fast-acting and economical. It is suitable for washroom dispensers, and is marketed in 6 oz. containers, 5 lb. fiber packages and 170 lb. fiber drums.

8-SPINDLE ADJUSTABLE DRILL HEAD

NEW 8 - spindle multi-drill, which is said to increase productive drilling capacity of single drill presses eight

times, is announced by Commander Mfg. Co., 4225 W. Kinzie St., Chicago 24, Ill. It is quickly and easily attached to any drill press, and drills 8 holes to one stroke in any hole pattern on or within a 9" circle. Minimum center distance is \(\frac{1}{2} \)".

ELECTRIC ROOM-HEATER



NEW industrially-designed electric heater, made by Appliance Div. of Hydro-Aire, 626 N. Robertson Blvd., Los Angeles 46, Calif., is reflector type designed to give maximum heating with minimum economy. There is no convection. Sturdily built of steel, it is said to be Underwriter approved. It measures 12" x 17" x 10", and operates on 110-120 V, A.C. or D.C.

(Please turn to page 172)



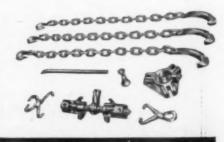
— on Pulling, Pushing, Spreading, Bending, Clamping, Holding and Lifting Jobs

• There's hardly a spot in any busy plant or in the field where you won't find many uses for a "Util-A-Tool" Set—on production installation, maintenance and repair operations.

Here are a few of the many jobs a Simplex "Util-A-Tool" handles with cost-cutting speed and efficiency: (1) Clamping and holding parts for welding or assembly, (2) Pulling pinions, bushings, wheels, and gears, (3) Lifting or lowering heavy machinery for installation, leveling or maintenance, (4) Serving as a handy beam clamp for chain hoists with the use of sky hooks.

Time and labor savings on a single job often save more than the full cost of a "Util-A-Tool" Set. Now available for immediate delivery through distributors everywhere. Write for Bulletin P & P-46.

"THE TOOL OF A THOUSAND USES"



TEMPLETON, KENLY & CO.
1014 South Central Ave., Chicago 44, III.



The values in doing business with one of the hundreds of well-established, progressive Fairbanks-Morse pump dealers are many:

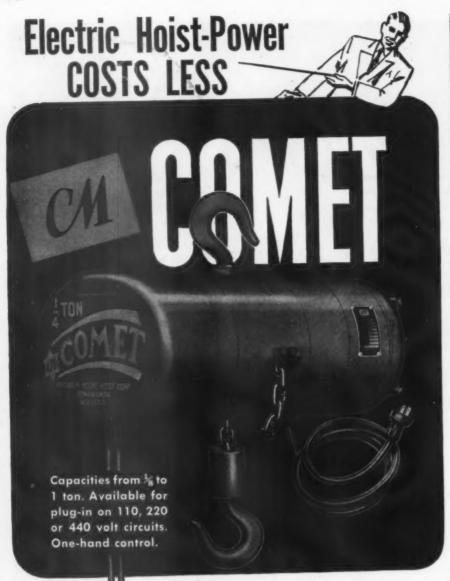
First, of course, you gain immediate advantages from the intensive research, skilled productive techniques and well-developed service organization that have long been identified with the Fairbanks-Morse name.

Too, you gain the long-term advantages of continued aid in keeping your pumps on the job—continued benefits from the wide-spread, quickly available Fairbanks-Morse dealer organization.

For a pump that's to give high efficiency year after year, buy from the dealer who will stand by you, year after year. See your Fairbanks-Morse pump dealer for all your pumping requirements.

FAIRBANKS-MORSE

A name worth remembering



- PORTABLE
- **SPEEDY**
- STURDY

■ ECONOMICAL Manual handling of materials is inefficient.., more so today than ever before. The CM Comet makes substantial savings in materials handling costs ... is doing it every day in thousands of plants. Possibly the CM

Comet can save a good many dollars for you too. Check up on the materials handling situation in your plant. CM Bulletin 138...available for the asking...will bring you complete details about the Comet.

CHISHOLM-MOORE

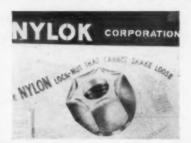
HOIST CORPORATION

(Affiliated with Columbus McKinnon Chain Corporation)

GENERAL OFFICES AND FACTORIES: TONAWANDA, N. Y. SALES OFFICES: New York . Chicago . Cleveland . San Francisco . Los Angeles

LOCK-NUT WITH NYLON INSERT

Self-locking nut, using molded nylon as the locking element, has been announced by the Nylok Corp., 475 Fifth Avenue, New York, N. Y. It is claimed that although A-N specifications call for a re-usability factor of 15 removals, the



Nylok nut has been demonstrated to show that 200 removals fail to reduce its torque below the required figure. Tests show that Nylon is unaffected by gasoline, oil, mild acids, esters, alcohols and caustics.

Vice President Robert Lovell of the Nylok Corporation states that his company, formerly The Fibre Lock Nut Co., has not only changed its name to The Nylok Corporation, but has converted its production from fibre nuts to the Nylok nut with nylon insert.

LUKENS ANNOUNCES STAINLESS CLAD STEELS

Complete line of Stainless-Clad Steels has been announced by Lukens Steel Company of Coatesville, Pa. In the Lukens method of manufacturing Stainless-Clad Steels, a light layer of the proper type of solid stainless steel is bonded to a backing plate of carbon or low alloy steel. The Lukens process insures uniformity of cladding thickness and a permanent bond between the stainless steel and the backing plate.

Stainless steels of types 304,316,347, 410 and 430 are the cladding materials generally used. They offer the corrosion resistance and product protection of solid stainless steel, at appreciable savings in material cost over solid stainless. In addition, they have far superior heat conductivity than solid stainless steels and are readily fabricated.

Lukens Stainless-Clad Steels exceed the minimum shear strength requirements of the ASME Code of 20,000 psi. The A.S.M.E. Code permits the cladding to be included in the full thickness for many applications. The cladding is usually 10% of total plate thickness, although any percentage from 5% up to 50% can be obtained. Specifications of both the stainless and the backing plate may be widely varied to meet chemical and physical requirements.

Lukens Stainless-Clad Steels are furnished in plates from 3/16" to over 3" thick; or up to 162" wide; and also in heads of all styles and sizes to over 18'

(Please turn to page 176)

Many Plants That Process Liquids



METERS • FILTERS
PROPORTIONERS
VACUUM STILLS
FUELING EQUIPMENT
Storage and Dispensing Units

The Bowser representative in your vicinity will be glad to check your plant and make recommendations. Just write us indicating liquids, temperatures and volume.

SALES AND SERVICE IN ALL PRINCIPAL CITIES

BOWSER, INC.

1334 CREIGHTON AVENUE, FORT WAYNE 2, INDIANA

This Bowser automatic can filling unit dispenses liquids in predetermined quantities from one pint to nine quarts. Temperature control and specific gravity adjustment.

Liquid Control Specialists Since 1885

COMBIDENCE.



Manufacturers of Wire Rope and Strand • Fittings • Slings • Screen, Hardware and Industrial Wire Cloth • Aerial Wire Rope Systems
Hard, Annealed or Tempered High and Low Carbon Fine and Specialty Wire, Flat Wire, Cold Rolled Strip and Cold Rolled Spring Steel • Ski Lifts

how much is it worth?



E ven in this atomic era, what engineer wouldn't be awed at the possibility of building a bridge of his own design across the hazardous Niagara gorge? Yet John A. Roebling was commissioned to do just that 98 years ágo... ten years before this country's first oil well was drilled!

What an outstanding example of confidence. The confidence of a man in his own work. The confidence of people in one man and his abilities.

Today this same confidence, that has been nurtured through the years, is still alive in the company founded by this man and his sons. On this same foundation was built a business that has always believed that confidence must be created and grows through completely honest business transactions with each and every one of its customers.

Little wonder, then, that your confidence in John A. Roebling's Sons Company is guarded so carefully.

WHY PLANT MEN SPECIFY "BLUE CENTER" STEEL WIRE ROPE

Basically, there is but one reason: a firm confidence in the Roebling name and reputation, in the Roebling organization and representatives, in the quality of the wire rope itself.

Of course, there are other reasons, too. You have the assurance that the complete range of constructions and sizes in "Blue Center" Steel Wire Rope includes the *right* rope for your installation. And whether it's a preformed or non-preformed type, you can trust it to give you the greatest measure of service for the money . . . day in and day out.

Let a Roebling Field Engineer advise you on unusual problems of rope selection, operation and maintenance. His knowledge is based on his own experience *plus* field studies, research and thousands of service records studied by Roebling's Engineering Department. Call him at our nearest branch office.



Branches and Warehouses in Principal Cities



Electrical Wire and Cable • Suspension Bridges and Cables
Aircord, Aircord Terminals and Air Controls • Lawn Mowers

ROEBLING

A CENTURY OF CONFIDENCE





of it write us now for a copy of "Designs for

Name plates"... Your request for quotation is solicited-you will receive a prompt reply.

ETCHING COMPANY OF AMERICA

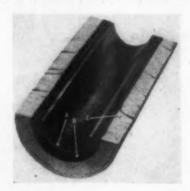
1520 MONTANA STREET, CHICAGO 14, ILLINOIS, DEPT. C-4

Metal Name Plates, etched or lithographed * Plastic Name Plates, Dials and Panels, lithographed or screened • Etched Metal Scales, Clock Dials, Instrument Panels, Art Novelties, Advertising Specialties • Etched Metal Panels for elevators and architectural uses.

SUBSIDIARY OF DODGE MFG. CORPORATION, MISHAWAKA, INDIANA

STEEL-MILL PICKLING LINE ROLL

New roll, known as the "Goodyear Special Hold-Down and Carrying Roll" developed by Goodyear Tire & Rubber Co., Akron, Ohio, provides almost complete resistance to damage from cuts. An inner cover of fibrous material guards the steel core from contact with acid.



Cross-sectional closeup of new Goodyear hold-down roll reveals these components: A-steel core of roll; B-especially developed fibrous inner cover which armors core against acid penetration: C-test cuts inflicted on outer rubber surface failed to pierce secondary fibrous cover.

A high grade acid resistant synthetic rubber cover is used on the weight carrying surface. Regardless of diameter of the new rolls, the protective fibrous material is applied to each core in a quarterinch layer. The rubber weight-carrying surfaces remain about three-quarters of an inch thick.

INDEX GUIDE TO WARTIME TECHNOLOGICAL DEVELOPMENTS

1 1 1

A comprehensive index guide to the tens of thousands of reports on wartime technological developments in the United States, Germany, and other countries has been prepared by the Office of Technical Services, Department of Commerce, John C. Green, director, announced recently.

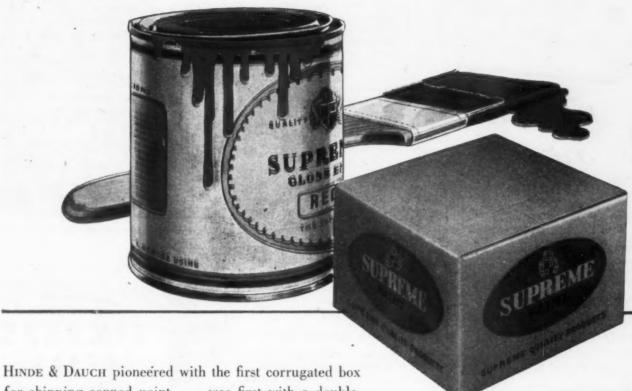
The index is intended for use with OTS' weekly Bibliography of Scientific and Industrial Reports. Published weekly since January 1946, the Bibliography lists all reports acquired by OTS and contains a brief abstract of each.

Researchers away from Washington have found the Bibliography inconvenient as a reference guide to specific subject fields for want of a convenient index. Frequently they have journeyed from distant places to consult the complete accumulative index available at OTS' central card file in Washington. Such inconvenience is now eliminated.

The new Index to the Bibliography of Scientific and Industrial Reports contains about 45,000 cross reference entries classified under major subject headings. Each entry lists the file number of the report and refers to the page number

(Please turn to page 178)

for PAINT



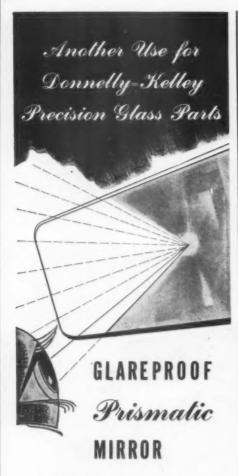
HINDE & DAUCH pioneered with the first corrugated box for shipping canned paint . . . was first with a double-wall box that greatly increased protection in transit, increased packing and handling efficiency, simplified identification in storage. Now, most canned paint is shipped safely and economically in corrugated boxes. Now, also, many other H & D "firsts" have become standard for their respective industries—glassware, chinaware, canned food, furniture—and are reducing shipping costs, eliminating damage in transit, decreasing distribution costs, increasing sales. The Hinde & Dauch Paper Co., 4704 Decatur Street, Sandusky, Ohio.



"firsts"

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FACTORIES IN: Baltimore 13, Maryland • Buffalo 6, N. Y. • Chicago 32, Illinois • Cleveland 2, Ohio • Detroit 27, Michigan • Gloucester, N. J. • Hoboken, N. J. Kansas City 19, Kansas • Lenoir, N. C. • Montreal, Quebec • Richmond 12, Virginia • St. Louis 15, Missouri • Sandusky, Ohio • Toronto, Ontario • Boston, Mass



This prismatic rear-view mirror deflects 90% glare. Made for the Guide Lamp Division of General Motors Corporation, this piece is an example of the finest quality mirror-surfacing and fabricating that is making Donnelly-Kelley famous for precision glass parts—in the industrial world of today. May we help you, too, with your flat glass problems. We invite you to send us your inquiry.



(Continued from page 176)

of the Bibliography on which an abstract of the report appears. With the Index and a file of the Bibliography at hand, a researcher may readily determine the number of reports available from OTS in a special subject field and examine the abstracts.

The Index used in conjunction with the Bibliographies provides a bird's eye view of the scope of OTS' collection of reports. For example, 57 items are listed under the heading "Protective Coatings", 24, under "Crating and Packing", 56 under "Aircraft Engines", and hundreds of others under various subjects in elec-

tronics, chemistry, metallurgy, and other fields.

The first volume of the *Index* covers the first 25 issues of the *Bibliography* from Jan. 11, 1946 through June 28, 1946. Future volumes of the Index will cover quarterly periods. The second volume is

now in preparation.

The Index to the Bibliography of Scientific and Industrial Reports may be purchased from the Superintendent of Documents at 50 cents a copy. The weekly issues of the Bibliography itself (not including the Index) are available from the same source at a subscription cost of \$10 a year. Subscribers to the Bibliography must purchase the Index separately.

Recent advices state that the bibliography has been expanded to include 1500 new abstracts of technological reports in each issue. The number is now twice that printed in early issues.

OTS recently published an Index to the first 25 issues of the Bibliography (January through June 1946). It is available from the Superintendent of Documents, Washington, D. C., for 50 cents.

PRESSURE SEALING ZIPPER

1 1 1

The Pressure Sealing Zipper, illustrated is a unique device of rubber and metal, manufactured by The B. F. Goodrich Company, used to seal sections of the supercharger air ducts on the Republic XF-12, four-engine army photographic



Supercharger air duct seal

plane, with a 4000 mile range and speeds above 450 mph. A commercial version being built is called the "Rainbow." Twelve of the Pressure Sealing Zipper units are required for the plane, three from each of the supercharger ducts to the four 28-cylinder engines.

(Please turn to page 180)







We're "JUST AROUND THE CORNER", Too!

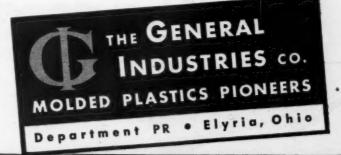
Miles don't count when you want molded plastics that combine genuine quality and lustrous appearance with low cost and delivery as promised. That's because there's a General Industries representative "just around the corner" from you... ready, willing and more than able to consult with you on your plastics molding problem.

For over a quarter of a century we've been delivering the best in molded plastics, on time, to customers East, West, North and South. And we're glad to say that most of our first customers are still with us. They know that at GI they obtain the kind of production that

meets every specification perfectly.

If you have a plastics molding problem that calls for closest tolerances, matchless satinsmooth finish and delivery when you want it... get in touch with the General Industries man—he's "just around the corner". No obligation, of course.

WE INVITE YOU TO SEE US AT BOOTH NO. 5 2ND NATIONAL PLASTICS EXPOSITION, MAY 6-10 THE COLISEUM, CHICAGO



brough worker

stu

sto

rec

for

job

How to put your suppliers in your own "back yard"



It's like having all your suppliers right at hand, when you specify shipment by Air Express. Even coast-to-coast deliveries of supplies and parts are now routine. When you're in a rush for something, big or little, let Air Express solve your problem.

With more and bigger planes in service, Air Express schedules are more frequent. But the cost of this faster service is low. There is profit for you in the speed of Air Express, so use it regularly!

Specify Air Express-it's Good Business

- Low rates.
 Special pick-up and delivery at no extra cost.
 Direct by air to and from principal U. S. towns and cities.
- · Air-rail between 23,000 off-airline communities.
- · Direct air service to and from scores of foreign countries

Just phone your local Air Express Division, Railway Express Agency, for fast shipping action . . . Write today for Schedule of Domestic and International Rates. Address Air Express, 230 Park Avenue, New York 17. Or ask for it at any Airline or Railway Express Office. Air Express Division, Railway Express Agency, representing the Airlines of the United States.



CRATE REDESIGN INCREASES CAR LOADING 25 PERCENT

One unusual result of the current freight car shortage has been a recent improvement in packaging and loading worked out by personnel of the Apex Electrical Manufacturing Company, Cleveland, Ohio, which enables the company to load an average of over 25 per cent more washing machines into each



By redesigning the crate in which each washer is shipped and changing the arrangement of the tiers of crates in the cars, the Apex Traffic Department increased the capacity of the largest-type car from 156 to 210 washers. In a smaller car the increase was from 96 to 126 washers.

"An added advantage that we didn't anticipate was a 60 per cent reduction in in-transit damage to the washers," said W. F. Nank, traffic department manager. "We eliminated the waste space and in so doing eliminated the possibility of the crates shifting en route.

In one typical-size car, the washers are loaded four abreast with the entire laterial tolerance reduced to two inches.

USE OF LEAD COATINGS ON STEEL INCREASING

1 1 1

Although the wartime interest in hot dip lead alloy coatings on iron and steel was due, in part, to the need for a substitute for zinc, this interest has continued to increase under peacetime conditions, says Lead, published by The Lead Industries Association. Lead coatings have advantages which make them especially desirable under many conditions.

For corrosion resistance lead alloy coatings show up especially well in industrial atmospheres which are generally acid in character. They are ductile and do not tend to crack and spall when the base metal is bent or otherwise distorted. Because the melting point of lead is comparatively low the dipping across has little tendency to cause warping of fabricated parts and it is usually possible practically to eliminate the "tear drops' or thick areas of coating material on the bottom edges of the coated article.

In addition, lead alloy coatings are completely adaptable to painting. Lead is compatible with the commonly used exterior paints, not only because they usually contain lead pigments but because the products of chemical reaction between the metal itself and the paint vehicles

(Please turn to page 182)



For proof, look at this actual photographic study. It shows a typical plant routinestoring a load of parts-but with every move recorded on film.

Where the unloading is done by hand, the worker moves back and forth, back and forth, wasting time and effort with every move. And until he's done, no one else can use the truck.

Not so with Barrett Lift-trucks and Skids! One move releases the lift-truck for other jobs . . . the materials stay on the skid, ready to move with a sweep of the lift-truck handle -no repiling beforehand.

Try Barrett Lift-trucks and Skids for your materials handling. Whether it's room to room, floor to floor, or in and out of trucks, you'll find that one man with a Barrett does more than 3 or 4.

See a demonstration—call your Barrett engineer!

BARRETT-CRAVENS COMPANY

3280 West 30th Street

Chicago 23, Illinois

Representatives in All Principal Cities Canadian Licensee: S. A. Armstrong, Ltd. . Toronto, Canada one sweep of the handle frees the truck for other work.

-the load stays on the skid-and



A little book jan full of money-say ing ideas-you free copy of th Barrett Junior Ca aloal











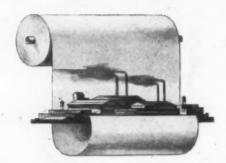








Duplan NOW DEVELOPS 27 NYLON FABRICS FOR INDUSTRY



MAY BE USED IN YOUR PRODUCT OR MANUFACTURING

Costs less than you think

Special Duplan Nylon fabrics offer great advantages to industry. Many different cloths are now being made and used. Others can be designed to your specifications. All have these characteristics:

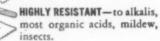


COLOR-is naturally white, can be dyed in colors.

AIR POROSITY—can be woven to allow passage of large or small air volume.



WEIGHTS-range from zephyr weights to heavy fabrics.





NYLON SAIL CLOTH

Duplan Nylon Sail Cloth developed for leading sail makers, used by winners 1946 Bermuda Race, and by yachtsmen of all boat classes.

9 MILLS TO SERVE YOU

QUICK DRYING-non-porous, absorbs little liquid.

COMPARATIVE FIBER STRENGTH-

grams per denier.	12	3	4	3	6 7	8
High Tenacity Nylon Regular Nylon Silk Cotton High Tenacity Viscosa Rayon Regular Viscose Rayon Wool Regular Acetate						

GLASS FABRICS FOR INDUSTRIAL USE

Strong, fireproof glass fabrics bring advantages for construction or decorative use. Woven to fit special needs. Get details from Duplan.

WRITE for suggestions on using nylon. Tell us how you use fabrics in your business.

FABRICS FOR INDUSTRY DEPT.



CORPORATION

5.12 SEVENTH AVENUE .

NEW YORK 18, N.Y.

(Continued from page 180)

are not brittle. Lead coated articles require neither a special metal-priming paint nor a pre-painting treatment. In fact the lead coating may be regarded as a priming coat in setting up the painting system.

There are an increasing number of job shops doing lead alloy coating as well as several manufacturers who have installed dipping lines for their own products. A wide variety of products are being coated commercially including bolts and nuts, washers, gas meter connections, mop handle parts, springs and plating baskets as well as the roofers hardware illustrated on this page. Other items under investigation show interesting possibilities in several lines.

ACCOMMODATION LADDER

A new line of light-weight aluminum accommodation ladders for use by the marine industry is announced by the Alumium Ladder Co., 268 Carbis St., Worthington, Pa. Illustration shows a 36-foot accommodation ladder made from



Aluminum ship ladder

61 ST alumium alloy, having a tensile strength of 45,000 psi. The ladder is raised and lowered by a block and tackle. Ladders are made to buyer's specifications.

FLAT GROUND TOOL STEEL

"Prefabricated" carbon tool steel, known as Marshall Steel is announced by Marshall Steel, 228 N. La Salle St., Chicago, Ill., as being a ready-to-use tool steel, which eliminates the buying of raw steel, cutting to size, shaping or planing, as well as grinding operations. Ranging in thicknesses from 1/64" to 11/4" and in widths from ¼" to 10", the steel is furnished in standard 18" lengths, wrapped and protected by oil. It is annealed for easy machining. Heat treating is accomplished by normal procedure with either a brine or oil quench.

(Please turn to page 186)



ITS FUTURE HUNG ON A THREAD

As the "horseless carriage" became part of the American scene, it brought a new demand for threading tools. Over 1000 makes of cars were on the road; machine shops mushroomed up over the countryside. But the automobile was only part of it... the country was on the threshold of a tremendous new mechanical age. And its future literally hung on a thread, for without fast and accurate threading tools, the miracles of modern

precise machinery would have been impossible to attain.

GTD "Greenfield" played a vital role in this industrial revolution, developing threading tools of greater strength, speed and accuracy. Quick to recognize the superiority of GTD "Greenfield" products in those days, metal-working manufacturers have ever since looked to "Greenfield" for high quality in threading tools.



GTD "Greenfield's" development of improved designs in taps set new standards for cutting internal threads. First operated by hand with tap wrenches, these taps later were used in drill presses, high speed tapping machines and automatic screw machines to give greater speed and accuracy of production.



GREENFIELD

TAP and DIE CORPORATION Greenfield · Massachusetts The GEOMETRIC TOOL COMPANY

New Haven, Cannecticut: In its Fifty-Fourth Year

PLYSION OF GREENEIED TAR and DIE CORPORATION

Old Cost Calculations are Scrapped by

ROCKRITE
Close-Tolerance Tubing

Present methods of computing the comparative costs of bar stock, mechanical tubing and forgings for the manufacture of cylindrical or ring-shaped parts may not provide the correct answer to your cost problem. For Rockrite has *changed the picture* . . . provides *new* standards in new and closer tolerances, greater concentricity, and less ovality in tubing.

If you are now using bar stock or forgings, it is probable that Rockrite's dimensional accuracy will permit considerable savings in machining time. Close tolerance I.D.'s, for example, may eliminate entirely the need for inside finishing.

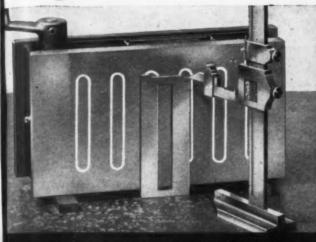
Yes, new ways of calculating the enonomic uses of tubing are called for, because Rockrite's minimum ovality and greater concentricity mean less waste metal and faster cutting speeds, and open the way to wider use of forming tools.

Rockrite close tolerances may be had in heavy-wall, bi-metal, tapered, and long-length tubing, and is adaptable to many grades and analyses of steel and other metals which are difficult or impossible to cold-draw to size.

It will pay you to investigate the new Rockrite Tubing. Send for the Rockrite 20-page Bulletin containing non-technical explanations of how this close-tolerance tubing can reduce your material and shop costs. Technical data of interest to your engineers is also included. Write today.



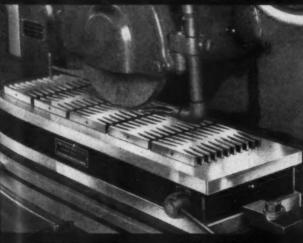
Get-ups Simplified...



TESTING, INSPECTING and LAYOUT WORK



LIGHT PLANER OF SHAPER CUTS



GRINDING GROUPS of SMALL PARTS

J.



RECTANGULAR MODEL

Permanent

MAGNET CHUCKS

- No wires
- · Positive holding
- · Instant release

Ready for instant use on any machine of suitable size—no electrical connections needed . . . one chuck can serve one or several machines. Also desirable for bench use. Available in five stock sizes with working surfaces up to 121/8" x 36".

ROTARY MODEL ALSO AVAILABLE - 9" dia.

Permanent Magnet Chucks are for sale only in the United States of America and its Territories. Write for catalog. Brown & Sharpe Mfg. Co., Providence 1, R. I., U. S. A.





We urge buying through the Distributor

BROWN & SHARPE



SECOND OPERATION SPINNING LATHE

Illustration shows second operation spinning lathe being marketed by The E. W. Bliss Co., Detroit 2, Mich., which offers fast, light equipment to bulge, neck, bead, wire, flange, curl, and trim a variety of drawn or spun shells. Not



Bliss second operation spinning lathe.



Line drawings show few samples spun from straight shells.

recommended as an alternative to the toggle press for producing shells from flat discs, these lathes are primarily intended to supplement the latter machines by rapidly accomplishing secondary spinning operations on products previously drawn in presses, and at a rate commensurate with the primary operation.

The new lathes are offered in two sizes, with up to 30" swing and 92" bed-length, with instantly variable speeds.

ULTRASONIC MATERIALS TESTER

An ultrasonic materials tester designed to indicate the presence of voids, cracks, porosity, laminations, poor bonds, and other internal flaws in metal castings, forgings, or finished machined parts as well as plastic and ceramic parts, has been developed by the Special Products Division, General Electric Co., Schenectady, N. Y.



New Materials Tester in use

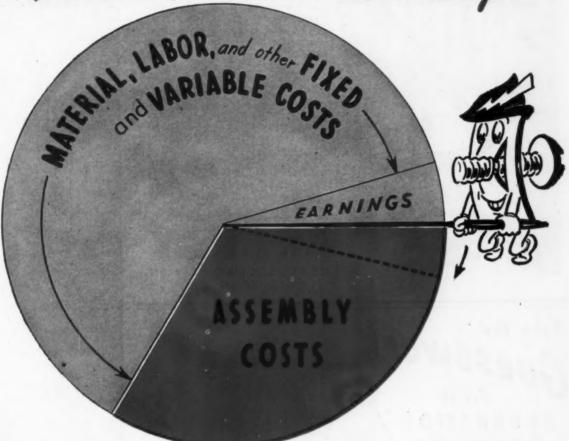
The tester sends a beam of ultrasonic waves through the specimen being tested. Changes in the amount of energy transmitted through the specimen indicate the presence and extent of flaws, which produce a decrease in total transmission, and a consequent drop in instrument

(Please turn to page 188)

LET Speed Nuts PUSH DOWN

Your Assembly Costs...

To Restore Normal Earnings



In building most any product, of metal wood or plastic, the most flexible cost factor is assembly. While reductions in other costs are difficult at best, your really big item of ASSEMBLY COST can be pushed down drastically.

And you can do it NOW. Hundreds of the nation's leading manufacturers are already doing it to restore normal earnings and meet the coming competition.

The SPEED NUT SYSTEM of Spring Tension

Fastenings is doing cost-saving jobs that may surprise you when you see the details. Over 4,000 shapes and sizes are available for the solution of your particular fastening problems.

If you want to truly modernize your entire assembly methods, to assure fair profits, investigate what the SPEED NUT brand of fasteners can actually do for you NOW. First step is to send assembly details for a complete no-charge fastening analysis.

TINNERMAN PRODUCTS, INC.

2050 FULTON ROAD

CLEVELAND, OHIO

In Canada: Wallace Barnes Co., Ltd., Hamilton, Ontario In England: Simmonds Aerocessories, Ltd., London In France: Aerocessoires Simmonds, S.A., Paris
In Australia: Aerocessories, Pty. Ltd., Melbourne





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*Trode Mark Reg. U. S. Pat. Off.

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FARADAY KODEMASTER

Gets the right man in a jiffy!

Every factory large enough for a telephone switchboard needs the efficient Faraday Kodemaster. It's the ideal system for locating individuals in a hurry—up to 30 different code signals.

Kodemaster is a unique, compact, fool-proof control for old or new signal systems. May be set up with any number or combination of bells, buzzers, horns, Kodaires, chimes, sirens

For time-saving signaling, and low installation and maintenance cost, install Faraday Kodemaster. Can be installed by any competent electrician. FARADAY UNIPACT units

are interchangeable, "as easy as plugging in a toaster."

At your electrical distributor's

FARADAY

ELECTRIC CORPORATION

Adrian, Michigan

Take the

GUESSWORK

Out of

PRODUCTION

PROBLEMS

with Time-Tested

Machine Tools

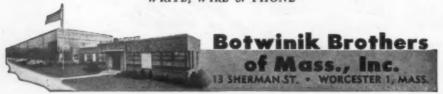
Rebuilt by

BOTWINIK



For anything or everything in Machine Tools, new, used or rebuilt, Botwinik is the one plant that stands ready to meet your requirements whatever their size or scope. Out stock includes thousands of machines—all job tested for accuracy, and to cover every purpose. Our engineers are familiar with every phase of production and know the value of quick dependable service as well as economy. Count on our vast facilities and engineering counsel to simplify all your machine tool requirements.

For Complete Information and Quick Results WRITE, WIRE or PHONE



(Continued from page 186)

reading. Testing is not affected by small changes in dimensions or position of test pieces. The instrument consists of a complete wide-band ultrasonic transmitting-receiving system having a high frequency generator, a crystal transducer for producing ultrasonic vibrations, a satisfactory medium such as water to transmit these vibrations, a second crystal transducer to convert the received mechanical energy into electrical signals, and an indicator supplying information for materials inspection or analysis.

Regularly-shaped specimens are examined by immersing the two transducers in a tank containing water and placing the specimen between them. The reading from the ultrasonic waves sent through the specimen is compared with that for a specimen shown to be sound by X-ray, mechanical breakage, or sectioning methods. The instrument can be used to indicate changes of viscosity, compressibility, and density of liquids, when these significantly alter the velocity or attenuation of ultrasonic transmission.

→ → → WIRE CORD TIRES FOR HEAVY DUTY SERVICE

Substituting high tensile steel wire for wire cord tire contains more than 55 miles of the strands, or about 28 pounds of steel. Desirable features of the tire cotton and rayon cord, The Firestone Tire & Rubber Co., Akron, Ohio, is now in production on wire cord tires. The wire cord tire is said to run cooler under heavy loads at high speeds, to give greatly increased mileage, and its unusual body strength permits it to be recapped several times.



Each 9.00-20 four-ply tire contains more than 55 miles of wire strands

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It is built up of plies of rubberized wire cord in the same manner as conventional cotton or rayon cord, though because of the greater strength of the wire cord fewer plies are required.

The wire cord is .036 of an inch indiameter, and is composed of several strands of wire .0058 of an inch in diameter. A woven, one-inch square section of the strands would support 390,000 pounds, it is claimed. Each 9.00—20 four-ply are listed as follows:

Strength of wire is not affected by heat. The wire cord dissipates the heat from the heavily rubberized part of the

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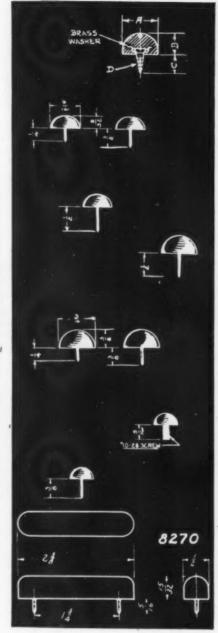
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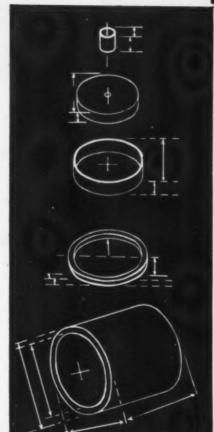
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we can make these for you





if it's rubber . . . it's



444 Madison Ave., New York 22

LATHE CUT parts — all sizes and shapes . . . NOW! BUMPERS — tack bumpers, screw bumpers, bar bumpers . . . NOW! Yes! You get good delivery on these hard-to-get rubber items . . . NOW! Order all your requirements.

If you need any rubber part — molded, die-cut, or extruded — big, small, simple, or intricate — made to your specifications or from stock molds . . . write or wire the H. O. Canfield Company. NOW!



FREE New H. O. Canfield general catalogue. Illustrates thousands of rubber parts made for all industries. Send for your copy today!



at your finger-tips!

With Jomac Industrial Work-Gloves, you've got flexibility right down to your finger-tips! What's more, you've got safety . . . no matter how tough the job!

There's a reason for Jomac's superiority. Its extraordinary fabric is "loop-finished," with hundreds of "aircell" cushions lock-stitched into place. Jomac Industrial Work-Gloves are made for longer wear . . . they give up to 7 times the wear of ordinary work-gloves!

When you look for flexibility, safety and long life in a work-glove, look to Jomac, the work-glove that makes friends with workers and production men alike! For details, write C. Walker Jones Co., 6130 North Lambert Street, Philadelphia 38, Pa. Plants in Philadelphia, Pa., Detroit, Mich., and Warsaw, Ind. Foreign Representatives: Gillespie & Co. of New York, Inc., 96 Wall Street, New York 5, N. Y.

"SHAKE HANDS WITH SAFETY"

JOMAC INDUSTRIAL GLOVES

THREE TYPES OF JOMAC GLOVES

REGULAR INDUSTRIAL TYPE • HEAT- AND FLAME-RESISTING

SAFETY GAUNTLET-CUFFS

(Continued from page 188)

tire, and runs 25 degrees cooler than the fiber cord tires.

Wire tires have never been known to blow out, it is said, even though individual cords have been broken or damaged.

Wire tires do not stretch or grow, and can be retreated in either original factory or regular molds.

It is pointed out that performance of the wire cord tire depends greatly upon maintenance practice of the individual operator, just as with conventional tires. Overloading, and mismating of duals must be avoided, cuts and snags must be repaired immediately, and proper inflation must be maintained through regular and frequent checks.

CRUDE PETROLEUM 100% UTILIZED BY NEW REFINING METHODS

Just as stockyards use all of a pig but the squeal, modern refineries have now advanced to the point where they use everything but the smell of crude oil in manufacturing petroleum products, Gulf Oil Corporation reports.

Up to 70% or 75% gasoline can be extracted economically from crude oil by the latest refinery techniques, Gulf revealed. This represents a substantial advance beyond the early days of refining when a range of 5% to 25% gasoline was all the crude would yield.

Every fraction of crude oil not absorbed in gasoline—and every refinery by-product—is also being utilized in upwards of 300 peacetime, petroleum products.

Refinery gases, once burned off as waste in huge flares which illuminated the refineries, are now converted by polymerization and alkylation into gasoline. This increases gasoline yield from the crude by 3% to 5%.

Those portions of crude oil not allocated to gasoline are converted to other uses by pressure, heat and chemicals. Various solvent treating methods remove undesirable constitutents from the many grades of lubricating oils. From the remaining crude and by-products of the refinery, hundreds of other products are manufactured. These range from fuel oil to cleaning fluids, insecticides, waxes, greases, home heating oils, tars, asphalts, and chemicals.

1 1 1 NEW POWER RHEOSTATS

New power rheostats, for applications involving dissipation of power, have been announced by the Specialty Division of General Electric Company's Electronics Department.

Available in 25 watt and 50 watt sizes, the new rheostats will furnish close action and long life under conditions of high ambient temperature and humidity, according to R. S. Fenton, in charge of the sale of radio parts for the Division.

The new rheostats are wound with a special alloy wire on a ceramic frame.

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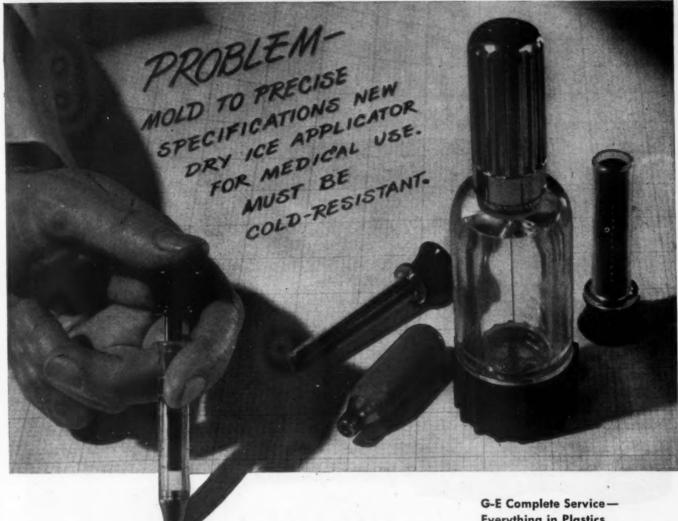
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ENGINEERED AND MOLDED AT NO. I PLASTICS AVENUE



Snowstorm in a plastics tube

• Ever hear of cryotherapy? It's the science of healing skin lesions with dry ice. And now it's more effective than ever before, thanks to General Electric plastics.

The Kidde Manufacturing Co., Inc., Bloomfield, N. J., designed an ingenious kit for physicians which made dry ice from carbon dioxide cartridges in a convenient, pencil-shaped applicator. Kidde asked General Electric to produce the apparatus in plastics that would withstand the -60 degrees F temperature of dry ice. Since the individual parts had to fit together precisely, the molding operation required unusual engineering skill. The final result met the high standards of the customer and of the medical profession-and provided another example of how General Electric successfully applies plastics to meet the special requirements of an unusual job.

When you think of plastics, think of General Electric, world's largest manufacturer of finished plastics products. Write for the free full-color booklet. "What Are Plastics?" Address Plastics Division, Chemical Department, 1 Plastics Avenue, Pittsfield, Mass.

GENERAL (28) ELECTRIC

GENERAL ELECTRIC PLASTICS FACTORIES ARE LOCATED AT SCRANTON, PA., MERIDEN, CONN., COSHOCTON, OHIO . . . FORT WAYNE, IND. . . . TAUNTON AND PITTSFIELD, MASS.

Everything in Plastics

BACKED BY 53 YEARS OF EXPERIENCE. We've been designing and manufacturing plastics products ever since 1894. G-E research works continually to develop new materials, new processes, new applications.

NO. I PLASTICS AVENUE - complete plastics service-engineering, design and mold-making. Our own industrial designers and engineers, working together, create plastics parts that are both scientifically sound and goodlooking. Our own toolrooms are manned by skilled craftsmen-average precision mold experience, 12 years.

ALL TYPES OF PLASTICS. Facilities for compression, injection, transfer and cold molding ... for both high and low pressure laminating ... for fabricating. And G-E Quality Control -a byword in industry-means as many as 160 inspections and analyses for a single





Save Time, Money, Steps and Nerves!

Executive decisions and production problems swiftly, clearly carried to the key men in your organization to be executed and solved immediately. FLEXIFONE is quality engineered modern and functional in design to meet your demand for a lightning-fast method of intercommunication. Choice of several models with capacities up to twenty connections. Mail coupon today and let free folder show you how FLEXIFONE gives you Wings for Your Words.



(Continued from page 190)

The winding form and mounting are fused together with vitreous enamel into one integral unit and fired at a high temperature with a tempered steel contact arm giving uniform contact at all times. The contact brush rides on a large flat surface and assures perfect contact with minimum wear on the wire.

Both watt sizes have standard resistance tolerances of plus or minus ten per cent. Rotation of the 25 watt unit and the 50 watt unit is 295 degrees, plus or minus five per cent. The 25 watt size can be obtained in ranges from 35 to 5,000 ohms. The 50 watt unit can be supplied in resistance ranges from 35 to 10,000 ohms.

Further information or technical specs on the newly-announced rheostats are available on request to the Specialty Division, Wolf Street Plant, Syracuse,

ROLLER RAMP FOR POWER TRUCK

The Yale & Towne Mfg. Co. has developed a new variation of the heavyduty power truck, for the easier manipulation of massive machinery and crates into carrying position by means of an integral roller-ramp and cable-draw system. The new device is called the Gravity Tilting Platform type of electric truck.



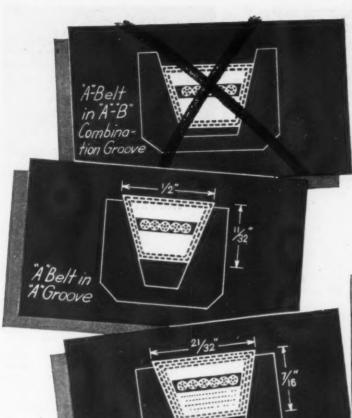
Yale & Towne Gravity Tilting Platform Truck

As shown in the illustration, the roller platform falls into ramp position when unlatched by the operator, and winchdrawn cables encircle the load to pull it onto the ramp and cause the ramp to rock back into the horizontal transporting position. Three pulling levels for the cable lines may be used, the lowest being direct from the cable drum (for very dense and low loads such as steel plate). The higher idler sheaves are employed to obtain higher purchases on such loads as machinery and bulky crates.

When empty, the roller platform is so balanced that virtually no effort is required to rock it into the horizontal position for empty return trips. When running loaded, it is recommended that the pulling cables be left in position to hold the load engaged and prevent it from vibrating on the platform-and to save time in re-rigging for the unloading operation. This, however, is not neces-

The truck body, the drive and the control equipment are all designed on the extra-heavy side. All six wheels are actuated by shockless worm-wheel steer.

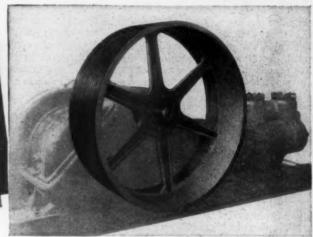
(Please turn to page 194)



NOW...

"A" and "B" V-Belts Fit Right and Show It

... because Worthington Makes QD Sheaves with "A" or "B" Grooves ... NOT a Combination!



Never again will you have to compromise on sheaves with an "A-B" Groove combination. That's because Worthington now makes the Original QD Sheaves with "A" grooves for "A" Belts . . . "B" Grooves for "B" Belts. This progressive step was taken because Worthington found that more and more customers preferred this better-engineered drive . . . this better-fitting drive . . . this better-looking drive. Stocks include all sizes from 3" to 22" diameter in "A" . . . from 4" to 38" in "B".

"B"Belf in \ "B"Groove

BETTER SERVICE FROM BIGGER STOCKS

Because of the steadily increasing demand for stock QD Sheaves, Worthington has installed new production facilities.

This stepped-up output has resulted not only in a 40% price reduction in "A" and "B" sizes but also in greatly improved service. From 18 stock Hubs and 791 stock Rims, Worthington customers can choose more than 25,000 stock QD Sheaves combinations for V-Belt applications ranging from ½ to 200 hp — plus smaller fractional horsepower sizes . . . all stocked at strategic points throughout the country.

"Strongest Sheave for Its Weight Ever Made"

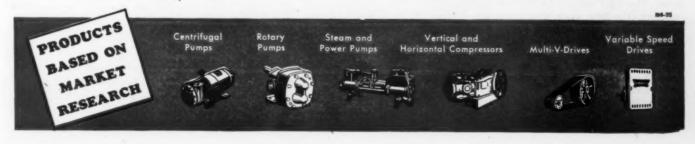
Investigate the reasons why customers agree that the new Worthington QD Driven Sheaves are the strongest sheaves for their weight ever made: "I" Beam construction of spokes; taper-mated, load-tested Hubs and Rims; full-sized Pull-Up Bolts; a design that reduces overhang stresses. These and many other features that prove there's more worth in Worthington are described in Bulletin VI400-B7. Ask your nearby Worthington distributor for it. Worthington Pump and Machinery Corporation, Merchandising Division, Harrison, N. J. 36 District Offices throughout the U. S.

WORTHINGTON QD SHEAVES

Easy to get on . . . Easy to get off . . . Yet always tight on the shaft

WORTHINGTON





MAKES CARBIDE PARTS EASY TO ATTACH—PARTS CAN BE DRILLED AND TAPPED

A development just announced by Carboloy Company, Inc., Roosevelt Park Annex, Detroit, now makes it possible to mount or attach carbide parts with screws, studs, etc., in the same manner and with the same ease as similar parts made of softer metals such as steels, bronze, cast iron, aluminum, etc.

The development tremendously expands the potential fields of application for carbides. It is particularly effective where large carbide sections are to be used. Heretofore, use of large sections of carbides has been handicapped to some extent by the fact that—in the hardened state—carbides are unmachineable to all practical purposes and cannot be drilled or tapped.

This objection has been overcome by processes through which machineable materials are solidly imbedded in the carbide parts wherever the part is to be threaded, etc. Outstanding feature of the development is that it includes the ability to use tapped blind holes in the attaching side of the carbide. This in turn means that large "wear parts" may be bolted down rigidly and yet present an unbroken wear surface (no "through" holes).

When it is desired to attach carbides by means of studs, screws, etc., the approximate location of the point or points of attachment and the number of such points are first determined. The carbide part is then provided with machineable "inserts" in those locations. The part may then be drilled and tapped at these points either before shipment from the Carboloy Company or by the user "on the job."

Among the potential applications are compound, progressive and segmental dies, particularly where blanking is done; wear parts in fixtures, etc.; crank guides; cams; liners for moulds and mills; punches for stamping and other work; machine ways, guides, work rests and shoes; wear plates on precision instruments; etc., etc.

ARGENTINE LINSEED OIL MADE AVAILABLE

1 1 1

George H. Priest, Jr., Director of Technical Field Service, National Paint, Varnish and Lacquer Association, Washington, D. C., reports that the Department of Agriculture has closed deal with the Argentine government for the shipment of 40,000 tons of linseed oil prior to May 31, and that arrangements have already been made for the first shipment. The total amount involved on the contract is a little more than 88,000,000 pounds, this being in addition to previous commitments and to possible switches or exchanges in international allocations which may amount to as much as 20,-000,000 pounds more. Mr. Priest states it all adds up to very substantial relief in the period prior to the marketing of oil from our own 1947 crop.

"TESTING PLASTICS PARTS" HANDBOOK AVAILABLE

"Testing Plastics Parts", the fourth chapter of the technical handbook being developed by the Engineering and Technical Committee Society of the Plastics Industry, 295 Madison Ave., New York, is now available.

This chapter relates primarily to tests which are given various finished articles to ascertain their ability to stand 'up under consumer usage. These are important guides to manufacturers in setting up performance tests for their own products and as a means of insuring consumer satisfaction.

Among the tests described in the chapter are: impact tests to determine the strength and resistance to shocks of various products; moisture resistance tests; means for ascertaining dimensional stability; heat resistance; crushing tests and others which will bring out facts that will enable production of top-grade items.

One to four copies may be obtained at a dollar each; five to nine at 85 cents each; ten to fourteen at 80 cents each; fitteen or more at 75 cents each.

FREE TECHNICAL PAPER ON FABRICATING ALUMINUM

"Technical Advisor" is name of new monthly technical paper on fabricating and processing aluminum, available from Technical Editorial Service, Reynolds Metals Co., 2500 So. Third St., Louisville, Ky. Current series of studies is devoted to the welding of aluminum. First issue also contains discussion of problems in connection with the various product uses of aluminum, and the soldering of aluminum.

LEARNING TO WELD BOOKLET

"Learning to Weld" is title of booklet published by the Lincoln Electric Co., Cleveland, Ohio; 32 pages, $5\frac{1}{2} \times 8\frac{1}{2}$, 83 illustrations including photos and drawings, bound in good quality paper cover, price postpaid in U. S. 25c per copy; elsewhere 35c per copy.

The booklet provides a simple basic approach for anyone interested in making a start in arc welding. Its purpose is to teach how to weld and to assist in applying arc welding to the repair of broken parts, the hard surfacing of worn parts and the building of miscellaneous equipment.

CATALOG ON WIRE CLOTH, FILTERS, STRAINERS

Industrial Wire Cloth, Metal Filter Cloth, and Fabricated Strainers are the subjects of new catalog just released by the Michigan Wire Cloth Co., 2100 Hoard St., Detroit, Mich. In addition to complete industrial wire cloth specification tables, the catalog contains a tabulation of the characteristics of metal filter cloth, and a guide or check list covering strainer design.

(Please turn to page 196)



INDUSTRIAL JOBBERS

COLORADO: M. L. Foss, Inc., 1901 Arapahoe St., Denver. CONNECTICUT: C. S. Mersick & Co., 260 State St., New Haven. ILLINOIS: Supplies, Inc., Set West Adams Street, Chicago; Globe Machinery & Supply Co., 617 Fifteenth St., Moline. INDIANA: The Central Rubber & Supply Co., 120 South Meri-The Central Rubber & Supply Co., 120 South Meridian St., Indianapolis. IOWA: Globe Machinery & Supply Co., 265 Third Ave., S. W., Cedar Rapids; Globe Machinery & Supply Co., East First St. & Court Ave., Des Moines. KENTUCKY: Neill-LaVielle Supply Co., Inc., 505 West Main St., Louisville. MARYLAND: Carey Machinery & Supply Co., 119 East Lombard St., Baltimore. MASSACHUSETTS: Chandler & Farquhar Co., 906 Commonwealth Ave., Deston. J. Bussell & Co., 102 Jan., 361 Dwight St. Boston; J. Russell & Co., Inc., 361 Dwight St., Holyoke; Brierly, Lombard & Co., Inc., 107 Foster St., Worcester. MICHIGAN: The Charles A. Stre-linger Co., 149 East Larned St., Detroit. MINNE-SOTA: Kelley-How-Thompson Co., 309 South Fifth Ave., Duluth; Kulseth Supply Co., 117 Washington Ave., Fargus Falls; Minneapolis Iron Store, 524 North Washington, Minneapolis; Uptown Iron Store, 918 West Lake St., Minneapolis; Berg Supply Co., Willmar. MISSOURI: The Faeth Co., 1608 McGee St., Kansas City. MONTANA: Kelley-How-Thompson Co., Billings. NEW JERSEY: Brodhead-Murphy Co., 525 West Grand St., Elizabeth. NEW YORK: Beals, McCarthy & Rogers, Inc., 50 Terrace, Buffalo; A. N. Nelson, Inc., 370 Hamilton Ave., Brooklyn; Keyste Nut & Bolt Co., 62 Murray St., New York City; Syracuse Supply Co., 314 West Favette St., Syracuse. NORTH DAKOTA: Empire Supply Co., Fargo; Minot Supply Co., Minot; Grand Forks Supply Co., Grand Forks. OHIO: The E. A. Kinsey Co., 331 Fourth St., West Cincinnati; Strong, Carlisle & Hammond Co., 1392 West 3rd St., Cleveland; The Smith Brothers Hardware Co., 580 North Fourth St., Columbus; The M. D. Larkin Co., 115 East Third St., Dayton; Mill Factory Supply Co., 622 Southard St., Toledo. PENNSYLVANIA: Emco Supply Co., Lansford; Standard Shannon Supply Co., 13 Letitia St., Philadelphia; Somers, Fitler & Todd Co., 327 Water St., Pitts-burgh; E. Keeler Co., 238 West St., Williamsport. burgh; E. Keeler Co., 238 West St., Williamsport. RHODE ISLAND: The Congdon & Carpenter Co., 405 Promenade St., Providence. SOUTH CAROLINA: Taylor Parker Co., Florence. SOUTH DAKOTA: Aberdeen Supply Co., Aberdeen: Cave Supply Co., Watertown. TEXAS: Peden Iron & Steel Co., 700 North San Jacinto St., Houston. VIRGINIA: Taylor Parker Co., Inc., 47 Commercial Place, Norfolk; Taylor Parker Co., Inc., 801 East Carey St., Richmond. WASHINGTON: Northwest Nut & Bolt Co., 4502 Fourteenth Ave., N. W., Seattle. WEST VIR-4502 Fourteenth Ave., N. W., Seattle. GINIA: Superior Sterling Co., 200 Bl WEST VIR-Bluefield. WISCONSIN: John Pritzlaff Hardware Co., 333 North Plankinton Ave., Milwaukee.

SALES OFFICES AND SALES ENGINEERS

A. K. Whitaker, 4076 Powers Ferry Rd., N.W., ATLANTA, Ga.; W. A. Lefler, 4922 Ivanhoe Ave., BALTIMORE, Md.; 20 North Wacker Drive, CHICAGO, III.; 1836 Euclid Ave., CLEVELAND, Ohlo; 522 New Center Bidg., DETROIT, Mich.; 821 Merchants & Manufacturers Bidg., HOUSTON, Tex.; Collins-Powell Co., 9247 Alden Dr., Beverly Hills, LOS ANGELES, Calif.; 115 Broadway, NEW YORK CITY; H. J. Forst, 225 Catalpa Place, PITTSBURGH, Pa.; 2330 Vauxhail Rd., UNION. N. J. In CANADA: A. J. Campbell & Co., Box 430 (Place d'Armes), Montreal.

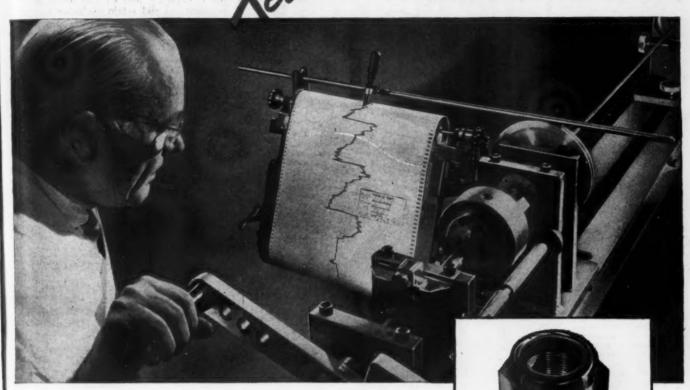
The ESNA advertisement shown opposite this column explains the dependable protection provided by all types of Elastic Stop Nuts. Arm lock prov have

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* Prove lity ASTIC STOP NUTS



-the Red Elastic Collar provides dependable locking torque for RE-USE!

Army and Navy specifications for aircraft lock nuts include a specific torque test to prove locking effectiveness. Lock nuts have to maintain adequate locking torque through 15 on-and-off cycles.

ESNA Elastic Stop Nuts-with the Red Elastic Collar that has become a symbol of security to all aviation engineers remain self-locking against Vibration, Impact and Stress Reversal in both prestressed and positioned settings.

In addition, the self-locking, self-sealing and reusable Red Elastic Collar protects the bolt. It does not deform the bolt, damage the threads or gall the finish.

Reusable ESNA Elastic Stop Nuts provide dependable protection against Vibration, Thread Corrosion, Thread Failure, and Liquid Seepage. This multiple protection - which has made Elastic Stop Nuts the standard fastener on many products-also achieves the double economy of inventory simplification and reduced procurement costs. ESNA engineers are now ready to study your fastener problems. Address: Elastic Stop Nut Corporation of America, Union, New Jersey. Sales Engineers and Distributors are conveniently located in many principal cities.

The RED ELASTIC COLLAR

- denoting an ESNA product -

. is threadless and dependably elastic. Every bolt — regardless of commercial tolerances — impresses (does not cut) its full thread contact in the Red Elastic Collar to fully grip the bolt threads. In addition, this threading action properly seats the metal threads — and eliminates all axial play between bolt and nut threads.

Torque tests - for Elastic Stop Nuts — are based on a steel-to-steel frictional coefficient of .18. Bolt loadings are figured at 40,000 psi for commercial bolts; 90,000 psi for aircraft bolts.

LASTIC STOP N



INTERNAL













Ready to Take a Beating to Save You Money

Bond 140-A
TRUCK CASTER



Bend 40-AH Series. A husky, structural steel caster. Heavy steel sections formed to shape... even thicknesses of metal throughout. Roller bearing semi-steel and rubber tread wheels. Wheel sizes: 8", 10", and 12" dia.; load capacities 680 to 4500 lbs. per caster.

BUMPS and jolts and strains of heavy loads—the Bond 140-A takes them all without quitting. A sturdy, all-steel caster, it is practically indestructible. It's built to cut your replacement costs, curtail production delays. Easy swivelling, the Bond 140-A will do many good turns for you during its long service life.

Every caster in the Bond line is designed for particular working conditions. Let Bond engineers recommend the caster that's right in every detail for yours. Write for the free Bond catalog K-36 today.

BOND FOUNDRY & MACHINE CO.
MANHEIM, PA.

PENDING CHANGE IN TRADE-MARK RULES

On July 5, 1947, a new trade-mark law, officially known as the Lanham Act of 1946, will go into effect. Individuals or companies now holding trade-marks must file affidavits before their marks are due to expire, if they wish to renew their registrations and retain exclusive rights.

Under the new law, greater property rights are given to owners of trademarks and trade names. Service firms, as well as manufacturers of goods, now can register identifying trade-marks. More protection is given to American trade-marks abroad. And protection against abuses through infringements is tightened.

Present owners of trade-marks or trade names are advised to obtain full details of the new law from the Patent Office. Application forms will not be ready for several months, as the new rules and regulations are still in preparation by the Patent Office.

PACKAGING EXPOSITION TO BE HELD AT PHILADELPHIA

The AMA Packaging Exposition, sponsored by the American Management Association, to be held at Convention Hall, Philadelphia, April 8-11, will have a total of 95,000 square feet of exhibit space, more than double the size of the 1944 exposition. Feature of the afternoon session, April 8th, will be a "Consumer Packaging Clinic", at which Henry J. Howlett, secretary, American Management Association, will preside, with a panel of experts discussing Design, Production, Protection, Materials, Merchandising, and the Consumer. L. W. Ledbetter, Purchasing agent, Ralston Purina Co., St. Louis, Mo., will talk on "Materials."

BATTERY COSTS SOAR

Though prices of automotive batteries have increased during the past several months as high as 62 per cent over prices in 1941, it has been revealed by The Association of American Battery Manufacturers that some costs have soared as high as 121 per cent.

As an example, a Group 1-100 ampere hour battery that cost the consumer \$10.35 in July 1941, now costs \$17.45, or an increase of 62 per cent.

But, a spokesman for the Association points out, the cost of lead for that battery today is 121 per cent higher than it was in 1941. Antimony now costs 108 per cent more. Container costs are up from 47 per cent to 73 per cent depending upon the type used. Covers are up 51 per cent in price.

These price increases and similar ones for other materials together with the increased cost of labor resulting from wage adjustments in the interim have jointly contributed to the increase in automotive prices.

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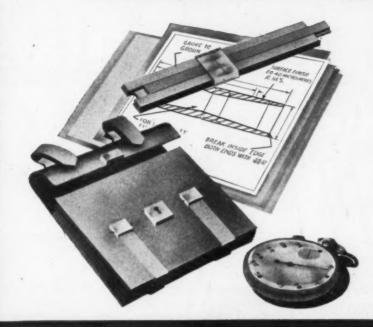
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A BUYING GUIDE FOR ABRASIVES

POINT No. 3

ABRASIVE ENGINEERING



For an increasing number of abrasive users, the suggestion to "Call in CARBORUNDUM" is becoming a standard practice. In many cases, it means calling in our Abrasive Engineers to discuss specific abrasive applications.

Here is a group of specialists well qualified to step in where there are unusual or difficult problems involving grinding, sanding or finishing. Often the information they pass on to both operators and production management is especially helpful... a fact reflected in the preference of so many plants, both large and small, for abrasives by CARBORUNDUM. The Carborundum Company, Niagara Falls, New York.

CARBORUNDUM

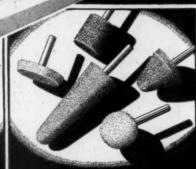
BONDED ABRASIVES

COATED ABRASIVES

ABRASIVE GRAINS AND FINISHING COMPOUNDS



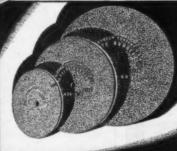
Tool Room sticks and stones that cut fast last long, and hold their form.



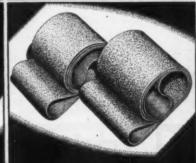
Mounted wheels, in all standard grits and grades, for portable grinding equipment



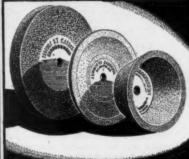
"Carborundum" is a registered trademark which indicates manufacture by The Carborundum Company



Cutting-Off Wheels...the modern tool for faster, less costly, more finished cuts.



A Coated Abrasive for every sanding and finishing condition



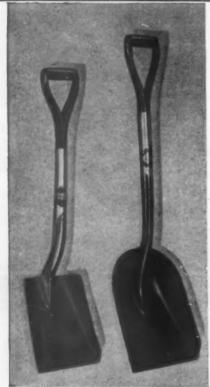
All standard shapes are supplied in grinding wheels by CARBORUNDUM.



Extra strong construction — openings closely spaced — available in rectangular, diagonal and U shapes — with Safety Steps. Ask for Bulletin 1140.

DRAVO CORPORATION, NATIONAL DEPARTMENT 300 PENN AVENUE, PITTSBURGH 22, PA.

(Distributor for THE TRI-LOK COMPANY)



All blade finishes now black except Molders' Shovels and Grain Scoops, which may be furnished with either face or back polished.

INGERSOLL the "BUY-WORD" in Shovels

No Split — No Curl — No Bend End to end—no better shovels made! That's because every Ingersoll is made of Tem-Cross Tillage Steel — with blade edges GUARANTEED NOT TO SPLIT. Electrically heat-treated for springy ruggedness on toughest jobs. Smooth, polished hardwood handles. All of which is why Ingersoll is the "buy-word" with so many buyers. How about you?

INGERSOLL STEEL DIVISION

Borg-Warner Corporation New Castle, Indiana

Plants: New Castle, Ind.; Chicago, III.;

INGERSOLL Shovels

RESTRICTIONS ON TIN-PLATE AND TERNE-PLATE CANS REMOVED

All size restrictions on tinplate and terne plate cans have been removed, according to the Civilian Production Administration. Action was taken by amending Order M-81 which retains plate specifications.

The object of the size restrictions in M-81, which was issued in February 1942, was to give the public food in economic packages and at the same time eliminate the use of small and intermediate cans which would have used more tin per volume of food packed.

In announcing the removal of can size limitations, CPA said that an allotment for 1947 of 32,000 tons of tin for the tin plate industry for all purposes had been tentatively agreed upon, but would not be increased because of the relaxation of can size specifications. Because of the tin supply situation, it now appears doubtful whether the entire amount of the tentative allocation will be available to the tinplate industry during the year, CPA added.

1 1 1 LAMSON & SESSIONS HONOR 50-YEAR EMPLOYEES

The Lamson & Sessions & Company of Cleveland, recently tendered a banquet to more than a thousand of its employees, at which twelve 50-year employees still actively engaged, were tendered special recognition, and presented with suitable awards by George S. Case, chairman of the Board. Employee rosters indicate that 148 employees have served in the company's Cleveland plants for over 25 years, and 638 employees have more than fiveyears of continuous service. The company was founded at Mt. Carmel, Conn., in 1865, moving to Cleveland in 1965. In addition to two plants in Cleveland, the company now has plants in Kent, Ohio, Chicago, Ill., and Birmingham, Ala. The affair, which was held in the Hotel Carter, Cleveland, was addressed by former Governor Frank J. Lausche of Ohio, and Sales Manager Robert G. Patterson.

FORD MOTOR CO. ISSUES YEAR TITLES FOR CARS

Current purchasers of new Fords, Mercurys and Lincolns are receiving 1947 titles, according to J. R. Davis, vice-president and director of sales and advertising of the Ford Motor Company, Dearborn, Mich.

"So-called face-lifting, resulting in slight appearance changes, is not necessary to designate a yearly model," Mr. Davis said. "It is up to the manufacturer to designate changes for the purposes of registering a car as a 'yearly model.' We have done this so current buyers of Fords, Mercurys and Lincolns will get the benefit of 1947 titles, thus protecting them on used car valuations in the future when such models are traded for new cars."

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Buy The Bearings Your Engineers Prefer-



Roller Bearings

Timken Roller Bearings are old tried and trusted friends to thousands of designing engineers in many industries. They have earned this confidence through a combination of scientific design; precision manufacture; and Timken Alloy Steel, plus more than 48 years of continuous engineering development and experience.

Timken Bearings are the universal choice for equipment of all kinds — wherever wheels and shafts turn—because they assure the performance and endurance machine manufacturers and users must have.

Every genuine Timken Bearing is positively identified by the trade-mark "TIMKEN" stamped on cup and cone. Look for it on every bearing you use. The Timken Roller Bearing Company, Canton 6, Ohio.

TIMKEN TAPERED ROLLER BEARINGS

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YOUR MACHINES CAN BE REBUILT TO PERFORM LIKE NEW AT LOW COST WITH BOTWINIK BROS. **GUARANTEED REBUILDING SERVICE**

Many war surplus machines have been operated under grueling, 24-hour schedules by improperly trained personnel without being overhauled. Botwinik's rebuilding service restores machines to perform with the accuracy of new equipment at a saving of up to 2/3.

FREE ESTIMATE: Write today for a free estimate for rebuilding your equipment.

Botwinik Bros.

393 Welton Street, New Haven 9, Connecticut



ROUNDS: 8' diameter

MOTOR: . . . Ya H.P., A.C. or D.C.

Selective 60, 90, 130 feet per minute WEIGHT: . . Approximately 645 lbs.

you use a Wells Saw. Just place the material in position for cutting, give a turn to the hand wheel of the quickacting vise, and you're ready to go. Hydraulic stabilizer on gravity feed and automatic shut-off take care of the rest. No wonder the Wells is popular with users!

From a management standpoint, it pays to provide workmen with these modern, efficient, versatile tools. Use them in stock rooms, machine shops, on maintenance jobs. Wells Saws do good work, cut close, remove minimum material. For production work, your Wells Saw can be equipped with the new Wells Wet Cutting System, as shown above. Ask for complete information.

Wells CALLE

Products by Wells are Practical

METAL CUTTING

WELLS MANUFACTURING CORPORATION 2400 JACKSON AVE., THREE RIVERS, MICH.

WESTINGHOUSE MACHINE TOOL ELECTRIFICATION FORUM

The 1947 Westinghouse Machine Tool Electrification Forum will be held in the Hotel Statler, Buffalo, N. Y. on April 22nd and 23rd. This will be the 11th annual Forum sponsored by Westinghouse, the purpose of which is to give machine tool engineers and executives of the machine tool builders an opportunity to discuss electrical problems relative to the design and function of machine tools. The second day of the Forum will be devoted to a tour of the Westinghouse Motor Division plant, preceded by talk on "Precision Manufacture of Electric Motors"

Features of the first day of the Forum will be Report from the Electrical Committee of the N.M.T.B.A.; paper on "Electric Controls of Multi-Purpose Machines", by J. H. Mansfield, C. E., Greenlee Bros., Rockford, Ill.; Talk on "Wiring of Station Type Drilling Machines", by R. C. Heinmiller, E. E., Foote Burt Co., Cleveland; and discussion by Westinghouse engineers on totally enclosed non-ventilated motors versus totally enclosed fan cooled motors; d-c motor drive with Rectox or Selenium power supply; and cost comparisons of special versus standard a-c motors.

MACHINERY EXPOSITION AT ATLANTA

1 1 1

"The Industrial South" will be the theme of the Second Southern Machinery and Metals Exposition to be held at the Municipal Auditorium in Atlanta, Ga., April 14-17. More than 150 companies will be represented at the exposition. Exhibits will range from displays of small tools and processing equipment to mechanized products for foundries and textile manufacturing. Electronic devices, material handling equipment, castings and precision machine work will be in prominence. There will be an Industrial Forum in conjunction with the exposition.

FRACTIONAL HORSEPOWER MOTORS HUGE BACKLOG

1 1 1

Announcing the 1946 shipments of fractional horsepower a-c motors totalled 19,546,599 units, the Civilian Production Administration reported that monthly shipments increased to 2,117,943 in December. Despite the accelerated rate of small motor shipments in 1946, the year ended with a backlog of 40,266,000 unfilled orders, or the equivalent of 19 months' shipments at the December rate. CPA officials declined to forecast how great an inroad may be made in this backlog in 1947. They pointed out that production is still increasing and may reach a maximum of 2,750,000 units a month in the third quarter. At the same time, order cancellations are increasing.

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HOW to handle a ton of material easier, faster...

for a matter of a few pennies



It's costing you plenty per ton if muscle is doing your handling. But with a Yale on the job, cost becomes a matter of "pennies—per—ton."

Of course, costs vary depending on the type of material handled and the equipment used. But in every case material handling costs take a substantial drop when Yale-power replaces manpower. The reasons are simple: Yale-power gives you more output per manhour, increased production, lower unit cost . . . faster, safer, more efficient handling. Wasteful rehandling is eliminated, worker's energy conserved, storage space increased.

For more detailed facts on how Yale Material Handling Machinery can cut your production costs, phone our nearest representative, or write direct to: The Yale & Towne Manufacturing Co., 4530 Tacony Street, Philadelphia 24, Penna.



KRON INDUSTRIAL SCALES . HOISTS-HAND AND BLECTRIC . TRUCKS-HAND LIFT AND ELECTRIC



- "as specified"

Maybe for more than 30 years you've bought all your hollow screws under the name of "ALLENS". Maybe you've bought other makes too, under the name of "ALLENS". For that has been the name and buy-word for hollow screws as a type.

If all were as serviceable as genuine "Allens" all would be well in ordering merely the *type*. But if you want or need the Allen strength and precision, you do have to specify the *make* — and get it. Be sure, then, the name is on the box as labeled in the photo above.

Your supply-source is your nearest Industrial Distributor, — Master Expediter of orders. He stocks for your allround convenience a full line of Allen Hollow Screws and Diemakers' Accessories.



The line consists of AL-LEN Hollow Set Screws, "Pressur-formd" Socket Head Cap Screws and Flat Head Cap Screws, "Tru-Ground" Shoulder Screws, Square Head Set Screws, Pipe Plugs, "Tru-Ground" Dowel Pins, Tap Extensions.

THE ALLEN MANUFACTURING COMPANY HARTFORD, * ALLEN * CONNECTICUT, U.S.A.

WIREBOUND BOX DEMONSTRATIONS CHICAGO, PHILADELPHIA EXPOSITIONS

The construction, manufacturing, and testing of wirebound boxes will be emphasized at the exhibit of the Wirebound Box Manufacturers Association at the American Management Association's Annual Packaging Exposition at Philadelphia, April 8 to 11, and at the Industrial Packaging and Materials Handling Exposition of the Industrial Packaging Engineers Association of America at the Hotel Sherman, Chicago, April 29 to May 1.

Two moving exhibits will animate the display. One will be a miniature of the Conbur or impact testing device. The other will be a wirebound box mounted on a shaft and rotating on its axis. Each side of the box will carry a wirebound sales message.

The miniature impact tester will be a bona fide scale model of the device upon which shipping containers are tested for impact resistance by being smashed against a bumper after rolling down an incline. The model will be in continual operation with a small wirebound box crashing into the bumper at the bottom of the incline and then being hauled again to the top of the incline by an endless chain

endless chain.

The W.B.M.A. will occupy exhibit Spaces Nos. 612 and 613 at Philadelphia and Nos. 133 and 134 at Chicago. E. F. Gallivan, assistant secretary of the association, will be in charge of the exhibit at both places, but it will also be attended at all times by representatives of various wirebound box manufacturing companies to explain the designing, manufacturing, testing, and utility of wirebound boxes.

7 7 7 DEMAND INCREASES FOR ALUMINUM

A recent estimate by the Civilian Production Administration indicated that the 1946 production of new aluminum in the United States will total about 836 million pounds. While this is almost three times as much as was produced by the nation in 1938, it represents only about two-thirds of the rated annual capacity, which is now approaching full production, according to George R. Gibbons, senior vice president, Aluminum Company of America, Pittsburgh, Pa.

Basic aluminum prices, reduced by 25 per cent since the start of World War II, are now relatively lower than ever before, he said. Aluminum's future position is strong, he said, and the indication that the industry will find even broader markets for its products, is bolstered by the many new techniques and versatile alloys of aluminum that have been developed within the last six years.

Among the outstanding applications, new and old, which are creating the present demand for aluminum in the architectural and building fields are: corrugated aluminum sheet for farm and

(Please turn to page 204)



Manned by a crew of four, this Olympic bob sled chassis has an estimated speed in excess of 89 mph. Note the ingenuity of design. The P-shaped hand rails serve as pushers, then swing in and lock to protect the crew. Instead of rope and drum, the sled is steered by standard auto gear. All parts are bolted for knockdown shipment.

The sled is built of 18-8 stainless steel throughout. Completely assembled, it includes round bars, hexagons, flats, sheets, tubing, pipe—even fittings. Yet every bit of stainless used was obtained—overnight—from a nearby Frasse ware-house.

It pays, when you're working with stainless, to work from Frasse stocks. The wide range of sizes, shapes and analyses available from this single source is a time and effort saving convenience. Call or write for our latest inventory. Peter A. Frasse and Co., Inc., 17 Grand Street, New York 13, N. Y. (Walker 5-2200) • 3911 Wissahickon Avenue, Philadelphia 29, Pa. (Radcliff 5-7100) • 50 Exchange Street, Buffalo 3, N. Y. (Washington 2000) • Jersey City • Syracuse • Hartford • Rochester • Baltimore



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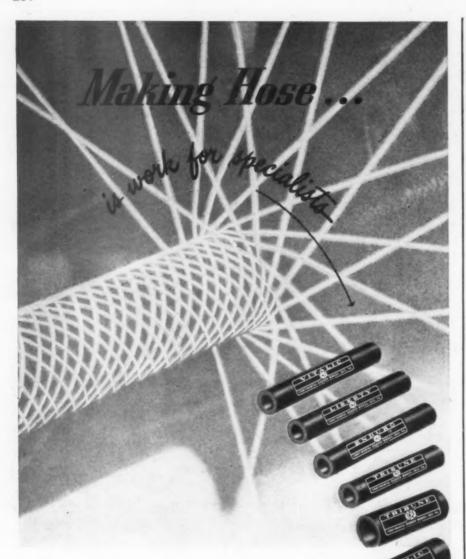
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Stainless Steels

PLATES • STRIP TUBES • PIPE ANGLES • WIRE



Continental's specialization is based not only upon long experience - 44 years of it -but also upon continuous research and the development of specialized equipment. These factors mean that the Continental hose you buy is built specifically to meet your requirements - is built to give you maximum service. Whenever you need air, welding, water, steam, or suction hose, why not consult Continental?

See Our Catalog in Sweet's

Rubber by CONTINEN Kansas City, Mo. Los Angeles, Cal Detroit, Mich Greensboro, N.C. Lutz, Fla. St. Louis, Mo. Hartford, Conn. Indianapolis, Ind

CONTINENTAL RUBBER WORKS . ERIE, PENNA., U.S.A.

(Continued from page 202)

industrial roofing and siding; metalclad buildings, prefabricated residential and other building; architectural trim and fixtures, windows, storm sash and screens, venetian blinds, metal awnings, hardware, and the growing use of aluminum for residential windows.

Also, aluminum is being extensively used in the light plane field, canoes, rowboats, sailboats, superstructure of passenger and cargo ships, interior partitions of ships; truck trailer and bus manufacture; railroad passenger cars; and a great deal is being consumed by the electrical manufacturing industry, particularly for electrical conductors in the field of building wire.

CONSOLIDATES BOX COMPANIES INTO HOERNER CORPORATION

R. H. Hoerner of Keokuk, recently formed the Hoerner Corporation, con-solidating the Iowa Fiber Box Co. of Keokuk, the A.B.C. Corrugated Box Co. of St. Paul, the Des Moines Container Co., Des Moines, Ia., the South West Box Company of Sand Springs, Okla.,



R. H. Hoerner

the Southwest Corrugated Box Co. of Fort Worth, and the Arkansas Box Company of Fort Smith, Ark. Four of these companies are complete corrugating units, and two are sheet plants. Mr. Hoerner has for some years headed all of these companies as president. He is also a director in a new associate, the Cajas Y Empaques Impermeables, S. A. Mexico, D. F., of which Henry S. Dabdoub of Mexico City is president. Mr. Hoerner is a director of the Fibre Box Association.

1 1 1 NO MAGIC PAINT COATINGS

The public has looked to the paint industry for new and magic-like coatings that will do anything from odorizing a room to killing insects, but "These notions of super-miraculous substances that will replace paint are fantastic," declared E. D. Peck, general paint manager, at recent meeting of the Paint Department of the Pittsburgh Plate Glass Company.

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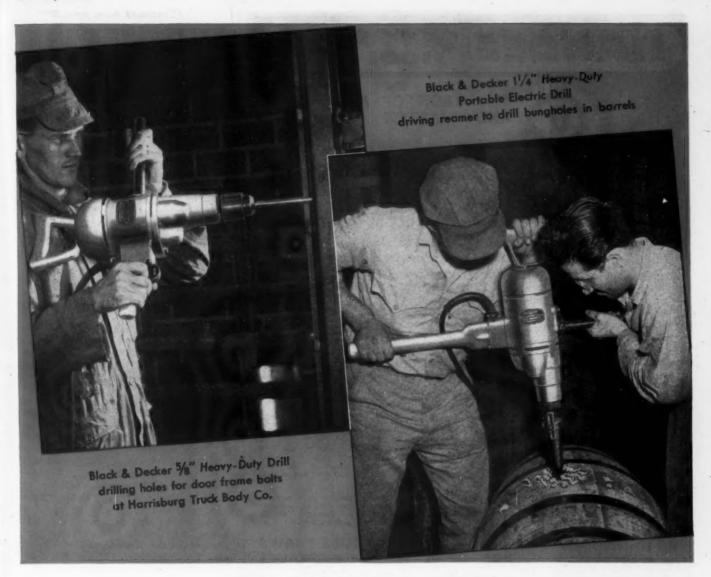
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"It is true that amazing steps have been made in developing synthetic resins and other ingredients for paint. The more general use of these new materials impart

(Please turn to page 206)



These RUGGED DRILLS Speed Up Heavy-Duty Work

Turn your toughest drilling jobs over to Black & Decker Heavy-Duty Electric Drills . . . and watch your output jump! These high-powered Drills handle continuous, heavy-duty drilling, wood boring and hole sawing. From spade handle to chuck, they're built to take it! Their heavy-duty, B & D-built motors are specially constructed for constant service. Heavy-duty gears and ball bear-

ings are used throughout. Roller bearings on chuck spindle withstand severe side and end thrust.

Wherever you are, there's a Black & Decker Distributor near you. Ask him about these Heavy-Duty Drills today. Remember, he's as close as your phone and ready to help on any tooling problem. For your copy of our catalog, write to: The Black & Decker Mfg. Co., 664 Penna. Ave., Towson 4, Md.

Here's why it pays to Standardize on Black & Decker Drills

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When you standardize on Black & Decker Electric Drills, you get a wide choice from the world's most complete line—capacities from \(^1/4''\) to \(^1/4''\). You enjoy the facilities of any of 26 Black & Decker Factory Branches, offering complete service on replacement parts and repairs. You receive expert help from a close-at-hand Black & Decker Distributor.





PRECISION ATTACHMENTS. Fit Handes only.
Offhand carving, routing, shaping is exact as to depth of cut, accuracy of line. Indispensable to pattern shop. Set of 6, postpaid, \$7.95.

HANDEE KIT — Strong, compact steel carrying case holds the Handee Tool and a complete assortment of accessories. Postpaid, \$27.58. Handee with 7 accessories only, \$20.50.

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CHICAGO ACCESSORIES FIT ANY POWER TOOL



THE MOST COMPLETE LINE AVAILABLE



OVER 500 - ALL FINEST QUALITY

THE RIGHT ONE FOR EVERY JOB!

WRITE FOR 64-PAGE CATALOG

CHICAGO WHEEL & MFG. CO.

DELIVERY

1101 West Monroe Street, Dept. PG, Chicago 7, Illinois (Continued from page 204) to paint infinitely higher quality than was found in pre-war coatings." He emphasized that the term synthetic does not mean in anyway a substitute. Rather it signifies a new ingredient that produces a better finish."

Discussing some of the public misconceptions of coatings Mr. Penk said, "the so-talled 'plastic paints' are largely in the nature of a promotional description. Infrared reflecting paints are not as efficient as whites and pastels and some of the silicone resins are at the moment entirely too expensive to be practical. DDT is effective only in flat wall paints for a very limited time and cannot compete for effectiveness with DDT clear coatings and sprays."

7 7 7 PAPER BOX SITUATION TIGHT

As the year ages, the set-up paper box situation becomes more confused ... difficult, if not impossible, reports the National Paper Box Manufacturers Association, Inc., Liberty Trust Building, Philadelphia. In some localities the demand is firm; this is particularly true out on the Pacific Coast. Apparently there isn't sufficient board produced out there, or obtainable from distant points, to make all the boxes being ordered. Generally speaking, the situation is spotty elsewhere. Some box producers are sold well ahead, others have just enough work to keep going full time. A few operate 44 to 48 hours and a number of manufacturers, particularly those doing a good percentage of stripping machine work, are working part time. This last named condition is perhaps more pronounced in the New York-New Jersey

There is definitely a buyers' resistance nearly everywhere; large box users started out beginning of the year demanding better quality boxes and lower prices. They argued raw materials costs would level off, as some commodities have, but not board and paper, which instead moved up in price and are still soaring, the sky apparently being the limit in not a few instances. Anyway, many buyers are marking time-holding off commitments for 60 or more days, contending 'raw stock," at least, can't go higher, so boxes can't be more costly a month or two hence; that quotations "may drop" etc. Their (buyers) judgment may again be as erroneous, as it was 60 days ago. Present indications point in that direction. Unfortunately, some box manufacturers become unduly alarmed at the slightest falling off in business and go on a rampage for orders which, in turn, means price recessions even now, at a time when board and paper are at an all-time high at many mills, except for a time during World War I. Matter of fact, many carloads of board are going into consuming channels at prices much higher than World War I peaks, with buyers (board) from all parts of the country, including Southwest and Pacific coast, grabbing all they can get in East-

(Please turn to page 210)

Matched for weight and matched for strength



or

of

th

Can you ever forget the fun of using your matched "clubs" for the first time; the thrill that comes each time you swing and feel and hear that solid click peculiar to a shot that's "in the groove". But don't overlook the fact that the shafts of match-

ed clubs are steel tubes. For only with steel tubes can you get the uniformity in strength and weight—(plus economy of manufacture) that makes matched clubs possible.

Globe Steel Tubes Co. does not make matched golf clubs—our business is steel tubes in seamless carbon, alloy, stainless steels—high purity ingot iron tubing known

as Globeiron — and welded stainless steel tubing called Gloweld. And in that business we exercise every precaution and care known to chemistry, physics and metallurgy to produce tubing "matched" in unvarying uniformity and quality. A fully equipped and staffed Globe laboratory helps to make that possible.

Your requirements in steel tubing may be just "staples"—or they may involve problems. In either case you can look to Globe as a dependable source of supply as well as a highly specialized organization eager to explore new fields in tubes and tubing applications.

Globe Steel Tubes Co. . Milwaukee 4, Wisconsin





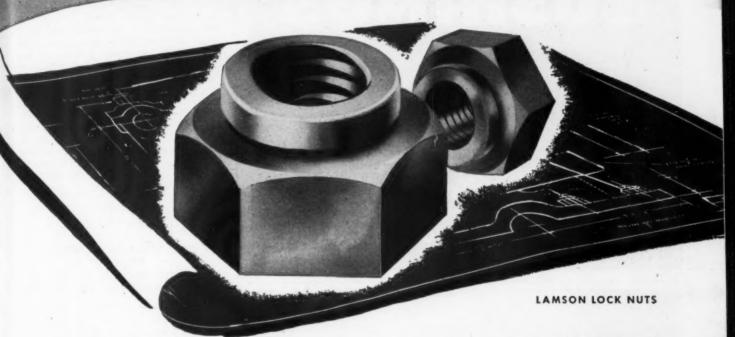
S . DARDELET RIVET BOLTS . CLIP BOLTS . PLOW BOLTS . TIRE BOLTS . SHEET METAL SCREWS . MACHINE SCREWS . STOVE BOLTS . CENTER

PHILLIPS SCREWS . CAP SCREWS . SET SCREWS . PIPE PLUGS . HOT PRESSED and COLD PUNCHED NUTS . SKEIN NUTS . BATTERY ARREL

DUCTS . CLUTCH HEAD SCREWS . TAIL NUTS . HEEL BOLTS . ACORN NUTS . CAPPED NUTS . SLEIGH SHOE BOLTS . STOVE RODS . SERTS

ONNECTING-ROD BOLTS and NUTS . PLACE BOLTS . MARSDEN NUTS . SELF-TAPPING SCREWS . FITTING-UP BOLTS . U BOLTS . HOOK BO

Butt in" on your Blueprints perhaps solve your Fastener Problems?



YOU have high hopes for that new product of yours. It has what it takes to succeed in a big way. Utility, sales appeal and it's priced right. Your engineers and designers have seen to that.

But how are you going to assemble it most efficiently? What types of nuts and bolts and screws will do the job right . . . and at lowest cost? For instance, will you be able to use socalled "STANDARD" fastenings . . . types that are used on thousands of other products? Or will your new product require one or more "SPECIAL PURPOSE FASTENINGS" . . . such as the all-steel, one-piece Lamson Lock Nut illustrated above, or one of the products on the opposite page?

Choosing the proper fasteners for a product is an exact science in itself. It takes a whale of a lot of "know how" to select, out of the thousands of fasteners available, the particular one which meets all your requirments economically.

Whenever you are faced with a problem involving the proper choice of bolts, nuts, screws or allied products, LAMSON & SESSIONS invites your inquiry, without obligation. As one of the largest bolt and nut manufacturers in the United States, backed by 81 years' experience in the industry, we are in an excellent position to solve your fastener problems quickly - in fact, the answer may already be in our files.

THE LAMSON & SESSIONS COMPANY

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BOLTS . SEMI-FINISHED NUTS . LAMSON LOCK NUTS EVATOR BOLTS . STOVE RODS . TRACTOR BOLTS and HI-N CENTER BOLTS . HUB and WHEEL BOLTS

RREL NUTS . OBLONG NUTS . CABINET BED BOLTS . AIR

OK BO

SERTS . EYE BOLTS . CLEVIS PINS . HINGE PINS . TINNERS

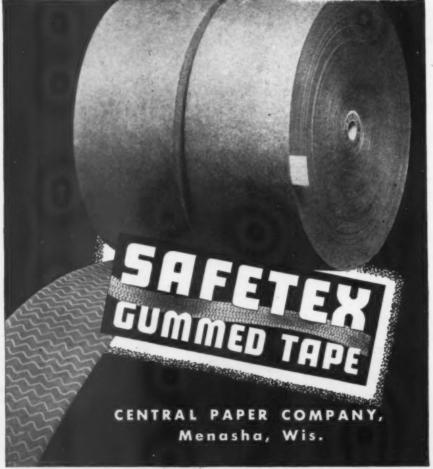
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THUMB SCREWS .. FIN HEAD BOLTS .





(Continued from page 206)

tern markets at up to double the prices charged by the respective board mills in home territory. As we said in these pages a month ago, there simply isn't a staple price for the various grades of board. The law of supply and demand is in command. In New England, they tell us chip and filled news are supplied at \$72.50 to \$75.00 according to reports emanating from the South, the same grades are placed on the sidewalks by some board mills at \$67.50 to \$70. In the mid-west, mill prices are higher but entirely too little stock is obtainable within the territory and "imports" from the East bring \$150; some say \$175 a ton. In the East - New Jersey, Pennsylvinia and Maryland chip and news range from \$80.00 to \$85.00 at mills with jobbers selling at \$95 to \$115. Lining (news) charges \$2 minimum; other grades of lining are proportionately higher in price. The present production of board is on a parity of 20,000,000 tons per annum, which figure will likely be reached this year, an all-time high. So many additional uses have materialized for paperboard that no possible production suffices. No change in the situation (except the possibility of even a greater shortage) looms within the horizon.

LEAD-TIN-ALLOY CONTROLS RELAXED CPA ADDS METALLIC NICKEL AND ZINC OXIDE TO CONTROLLED ITEMS

1 1 1

Controls over purchase of lead alloy and scrap and tin alloy and scrap containing 50 per cent or more by weight of the basic metal from the Reconstruction Finance Corporation have been relaxed by the Civilian Production Administration.

At the same time, CPA added metallic nickel and zinc oxide to the list of items whose purchase from RFC is subject to certain controls. These actions were taken through changes in Table A of Priorities Regulation 34. This table lists metals, minerals and other materials which may, under certain circumstances, be purchased from RFC or through it from other government agencies.

No CPA authorization is now needed for the purchase of lead alloy or scrap and restrictions are no longer imposed as to who may purchase it. The same conditions exist for tin alloys or scrap, except that end-use restrictions imposed by CPA's tin order, M-43, are still in

With respect to metallic nickel, no CPA authorization is required but it will be sold only to smelters and reprocessors who certify that they are smelters or refiners, that they have been unable to get it from private sources foreign or domestic, and that their inventory will not be brought above applicable CPA inventory restrictions.

CPA authorization is now required for

(Please turn to page 212)

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The complete
New Britain Line
Automotive,
for Automotive,
Aircraft, General
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Maintenance and
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Production Needs
is sold by leading
Jobbers.

Greater Strength and Better Fit . . . that's what New Britain guarantees in every Socket that bears this famous signature.

Only the finest alloy steel can meet the rigid requirements of New Britain . . . to give amazing pulling power for least bulk. Only precision machining and broaching can hold tolerances so close as in these Sockets . . . to give unequalled "sweet fit on the nut". And, heat-treatment must be expert to boost strength to such high, super-safe limits . . . to give that extra toughness that stands up under hard use.

No slips or sudden breaks here . . . just downright knuckle and job insurance. That's why New Britain Sockets and Drive Parts have so much *PULL* with plant maintenance and repairmen. Ask your Mill Supply Jobber to show you these time-saving, money-making Hand Tools today. The New Britain Machine Co., New Britain, Conn.

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GREATER STRENGTH . BETTER FIT

HAND-TOOLS

CENTRALIZED CLEANING



WITH

perm-A-Clor

Many industrial executives, Mr. P. A., are in-

creasing production with centralized cleaning and Perm-A-Clor.

Small conveyorized degreasers, operating at full capacity, are spotted throughout the plant so as to be accessible to several departments. Perm-A-Clor, the vapor degreasing solvent recommended for mixed metals and other tough degreasing jobs, is used. Triad is specified for average degreasing requirements.

Detrex field representatives can supply you with information to answer all metal cleaning problems. Call one today.



ARMSTRONG Carbide TOOL HOLDERS



ARMSTRONG Carbide Tool Holders and ARMIDE (Carbide Tipped) Cutters come in cased sets for tool rooms and maintenance departments, and individually in all sizes for general machine shop and production turning. They permit not only the ready machining of sand-filled castings, the hardest and toughest steels as well as many heretofore "unmachineable" materials, but also make practical much heavier cuts and cutting speeds up to 600 f.p.m. on ordinary work. They also run from 10 to 100 times as long between reggindings.

Write for ARMSTRONG Carbide Bulletin.

ARMSTRONG BROS. TOOL CO. "The Tool Holder people" 303 N. FRANCISCO AVE., CHICAGO 12, U. S. A.

NEW YORK

SAN FRANCISCO

(Continued from page 210)

purchases of zinc oxide, but because of the extremely short supply sales will be authorized only in cases of emergency.

Requests for information or authorization should be addressed to CPA's Tin Lead and Zinc Branch, except in the case of nickel, which is handled by the Steel Branch.

MOVING PICTURE ON BALL AND ROLLER BEARINGS

"The Turning Point" is title of new sound film available from the Ball and Roller Bearing Information Center, 16 E. 48th St., New York 17, N. Y. The film dramatically documents the history and application of ball and roller bearings in modern civilization. It is available without cost in either 16 or 35 mm. size.

INDUSTRY BUYING MODERN TOOLS IN INCREASED VOLUME

The dollar value of dies, tools, molds and other special tooling shipped during the last two months of 1946 ran nearly one-fourth above that of the same period in 1945, according to figures released by the National Tool & Die Manufacturers Association. This covers the specially designed equipment used in "tooling up" standard machinery to produce new models. December shipments were the highest of any month of the fourth quarter.

This 24% rise in shipments indicates a good increase in actual volume, the association points out, since reports from all over the country show that the general price levels on tool and die work fall short of reflecting increases in costs, and have changed but little since V-J Day.

"This means that manufacturers of metal and plastic articles are banking on tooling up more intensively to cut their labor costs," said George S. Eaton, Executive Secretary of the tool and die organization. "It also means that the approach of keener competition is causing some of them to go ahead with preparations to bring out really new postwar models, in spite of all the labor and material uncertainties that plague the country."

Reflecting the usual year-end quietness, orders received in December, as reported to the association, showed a 15% decline from the November level.

Because of the trend toward more elaborate tooling as a means of lowering production costs, Mr. Eaton looks for a gradual rise in tool shop operations. However, he points out that the volume of special tooling is an excellent barometer of future business, as tooling orders must precede by some months the time when a factory can begin to turn out any new model. And if a serious recession is in prospect, he says that the output of dies and tools cannot be expected to continue its recent increase.

1 1 1



YOUR THERMOID CATALOG* WILL SHOW!

No matter what job you have for hydraulic control or industrial grease hose, Thermoid can place on your desk up-to-the-minute facts on sizes, working pressures and—availability! You can find immediately the size and structure you will need for the job you have to do.

We can also tell you-

That Thermoid hydraulic control and grease hoses are built with ample strength to do the work of rigid pipe, but without costly fitting, and with far greater flexibility. We can tell you exactly how they are lined and covered with materials that resist deterioration from contact with hydraulic oils and grease, reinforced to handle tremendous pressure, and designed to minimize volumetric and lineal dimensional changes.

Here's something about Thermoid too-

Thermoid concentrates its manufacturing for industry on the well integrated line shown below. The Company itself, while large enough to be thoroughly reliable, is still small enough to keep active contact with customers and their problems. That's one of the reasons why—

IT'S GOOD BUSINESS TO DO BUSINESS WITH THERMOID!



THE THERMOID LINE INCLUDES:
INDUSTRIAL BRAKE LININGS AND
FRICTION PRODUCTS • TRANSMISSION BELTING • F.H.P. AND MULTIPLE
V-BELTS AND DRIVES • CONVEYOR
BELTING • ELEVATOR BELTING •
WRAPPED AND MOLDED HOSE

A post card or a letter to the factory will bring one to you. If you buy coupled assemblies complete, ask your coupling manufacturer.

Manufacturers of new equipment are invited to correspond direct with the home office.

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Among the ASSOCIATIONS

Subject Matter at Local Meetings

Increased Attendance Marks Serious Meetings—Good Programs
Offer Opportunity to Sell Management on Fact Purchasing
Has Something Constructive to Offer—Opinions of
Presidents of Various Associations

Is your association having difficulty selecting subject matter for its regular meetings? Is attendance lagging? Would you like to see attendance increased? If you are faced with these problems, you will find it worth your while to analyze the accompanying comments on meeting programs by the presidents of numerous local associations. They constitute the second installment of a symposium on the important subject of "Subject Matter at Local Meetings."

Their comments reflect the deep feeling these leaders have for their profession and their desire that it be accorded its rightful place in the management circle. You and your program and educational committees will find therein an excellent assortment of experience and idea material that is proving invaluable in cementing member interest in their association and its meetings, and increasing meeting attendance.

These letters reflect the consensus that 'getting back to fundamentals' is as essential to association meetings as it is to postwar purchasing procedure. They show that progressive associations are concentrating on making meetings of greater professional benefit to members. You will note that round table and panel discussions, forums and commodity studies have proved to be fulcrums that lift attendance, and that extra nights are being set aside for social affairs.

It is indicated that meetings pertinent to purchasing are indispensable, that such meetings offer the opportunity to demonstrate to management that "purchasing has something constructive to offer", and that they are a means for helping the newer men in purchasing who are not cognizant of the problems and pitfalls of postwar buying, as stated by President T. E. Dimke of the Dayton Association.

It is obvious that Purchasing in its comprehensive scope is a most fertile field for subject matter. President H. F. Jones of the Philadelphia Association states that the N. A. P. A. code of principles and practices is a good "navigational guide"; and President Young of the Baltimore Association declares that many "headaches" that purchasing agents are unable to cope with as individuals, can be corrected by intelligent analysis

at group meetings and the weight of group action.

Here are the comments by the local association presidents:

Opportunity to Sell Management

T. E. DIMKE Akron Association

THE subject is very appropos at this time when we are emerging from a period of war time priorities and government assistance in the procurement and financing of materials to one of competitive buying and self-financing.

Many of the men who are now in the position of purchasing agents are not cognizant of the problems and pitfalls of post war buying and material control. You cannot divorce purchasing from any branch of administrative functions of a company and have a successful company. Thus, we owe to these men who are members all the assistance and information that we can give them. The best and easiest way to reach members old or new is through our meetings.

Any association or group is known by its purpose in a community or industry. We have a wonderful opportunity to sell the purpose of the Purchasing Agent's Association to management at the present time by showing management that we do have something constructive to offer, if it will allow its men to avail themselves of the opportunity. This can best be done by having meetings pertinent to purchasing.

The field of subject matter is so fertile that numerous topics could be selected and a good job done by the members themselves in presenting them to the group, thus adding to their own education as well as that of the group.

Increased Attendance

OTTO A. DWORAK Columbus Association

THE Columbus Association is conducting its meetings on a basis of educational subjects. As an illustration, our meeting last evening was one of the most interesting we have had for many months. This was brought about by the very fine presentation of Dr. Michael Jucius, Profressor of Business Organiza-

tion, College of Commerce and Business Administration at Ohio State University, on the topic "Education of a Purchasing Agent."

Professor Jucius proceeded to outline what he calls the "purchasing sequence" in a four-year term with an extra summer quarter at the University, and his presentation and the discussions revealed the close understanding between the association members and his ideas for purchasing training.

We in the Columbus Association feel this subject is so important that we are devoting all of our meetings to serious programs and are assigning extra nights for the usual social affairs. Our next major effort will be the participation of members in the work the students at the University must do in the preparation of theses and/or articles for competitive entry in contests such as are sponsored by the National Association.

We are very serious about the importance of subject matter at our association meetings, and it is beginning to reflect itself in our attendance and the favorable comment we have had. We expect it will also register with management who, after all, are vitally concerned with association memberships for which they pay good money.

We are also contemplating programs which one of the University economic professors will handle, built around commodities and set up in a manner that will elicit membership participation in discussions at the meetings.

I appreciate the article which you sent with your letter and endorse the effort to improve association meetings. (Purchasing, September 1946, page 234).

Best Attendance at Serious Meetings

RALPH O. KEEFER Vice President, District 6

am very much interested in the position which you have taken regarding the advisability of stressing purchasing matters in association programs and decreasing the emphasis that some associations seem to put on entertaining and social programs. Of course, I served as program chairman for my local association for one year—as most association (Please turn to page 226)

Quick Loyy-Cost Way to Load a Freight Car



Big palletized unit loads, handled by powerful battery fork trucks make light work of car loading and unloading — save time, muscle and money. In such work the 10% extra capacity construction pioneered by Philco is a

distinct advantage—provides more work energy to handle more tons and load more cars per shift. Write for specification data on Philco extra capacity types XL, XVL and the long-life "Philco Thirty".

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NATIONAL EXECUTIVE COMMITTEE MEETING IN HOUSTON

E. G. Swanson, The Herman Nelson Co., Moline, Ill.; Robert G. Matley, Whitman & Barnes Division of United Drill & Tool Corp., Detroit, Mich.; James A. Cooney, International Salt Co., Inc., Retsoff, N. Y.; Ralph O. Keefer, Aluminum Company of America, Pittsburgh, Pa.; Charles L. Sheldon, Hood Rubber Co., Watertown, Mass.; President George W. Aljian, California Hawaiian Sugar Refining Co., San Francisco, Cal.; George A. Renard, Executive Secretary, NAPA.; Charles M. Healey, Jr., City of Springfield, Mass.; Ira C. Jared, Sun Oil Co., Dallas, Texas; A. Grant Clark, McWilliams Dredging Co., New Orleans, La.; Garnet T. Dickson, Goodye ar Tire & Rubber Co. of Canada, Toronto, Canada.

Our N. A. P. A. Executive Committee in Action

By HARLAN E. CROSS

P. A., Sloss-Sheffield Steel & Iron Co. Birmingham, Ala.

VERY few of the 10,000 members of the National Association of Purchasing Agents have had the privilege of observing at close range the way the affairs of this professional group are guided at its top level; that is in the N.A.P.A. Executive Committee. Only a comparatively small number of these same Purchasing Executives have had the signal honor and the responsible task of serving their fellow members as a part of this Executive Committee either in the capacity of vice president of the N.A.P.A. for their geographical district, or the greater honor and the heavier responsibility of being the head of this body as the president of the N.A.P.A.

Hence, in spite of the desire of those on the Executive Committee that it be otherwise, an air of mystery and apparent secrecy cloaks these important sessions for the mass of the membership; and therefore few ever are cognizant of the problems that are faced and of the seriousness and wisdom with which these matters are considered and solved.

It was my privilege recently to sit in on and listen to a session of one of these Executive Committees and watch it perform—free from the encumbrances of the many duties that surround one while an actual member of the Council; I having had that honor and experience one time previously as a N.A.P.A. vice president from District Seven.

I was amazed and delighted as I watched from my aloof position on the side lines; amazed at the variety and number of problems that were presented, delighted at the sane manner and dexterity with which they were dispatched.

For these problems, like cream on milk, arise from the bottom of the purchasing agents organization to the top—rather I should say they are forced to the top, in

accordance with the organizational set-up, with definite instructions from the membership level.

The membership in each of N.A.P.A.'s 73 local affiliated associations, through their unconscious needs or expressed desires, shape the policy of the National Association of Purchasing Agents. Their contact man with N.A.P.A. is the national director of each local group. Through him the individual members direct their wishes to the administration level and through him they are kept informed of the actions of their elected administrative representatives, the National district vice presidents.

10,000 Members

Since the N.A.P.A.'s 10,000 members are scattered over the entire United States and Canada, they are grouped for convenience of organization into nine geographical districts: (1) West Coast, (2) Southwest, (3) Midwest, (4) Central North, (5) Canada, (6) Ohio-Pennsylvania, (7) Southeast, (8) Central East and (9) Northeast. The national directors of each association within each district form the District Council, from which is elected each year a District vice president to represent the associations of the district on the N.A.P.A. Executive Committee. It is in these District Councils, presided over by the District vice president, that the needs and activities of the local purchasing agents are discussed. Here the N.A.P.A. vice president is instructed or coached on how to present or decide on the problems that are forced onto the business agenda of the Executive Committee of N.A.P.A.

The recent meeting of the N.A.P.A. Executive Committee in Houston, Texas, to which I was a visitor, ran true to form: a lot of good fellowship and josh-

ing of each other by the representatives of the various districts, but also an enormous amount of earnestness and steady work by all to see that the business of the Association was carried on ably and efficiently. For those who have not had the opportunity to meet the members on this year's Executive Committee, permit me to introduce them.

George Aljian, one of the best of some very fine N.A.P.A. presidents, presided. Punctual, business-like, with a keen ear for the good points presented; quick yet tactful in discouraging an unwise suggestion, he guided the two days' business carefully and efficiently without letting it get out of the proper channels. George, before his elevation to the presidency of N.A.P.A., was vice president of District One, comprising the associations of Los Angeles, Northern California, Oregon, Utah, Washington and British Columbia. President Alijan directs the purchases of the California and Hawaiian Sugar Refining Corporation, Ltd., of San Francisco, California.

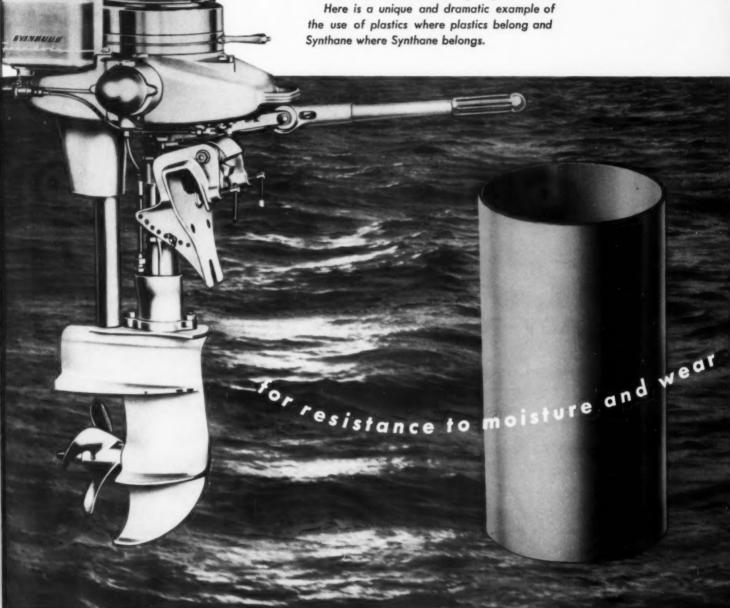
It was unfortunate, because of illness that Wayne Allen, vice president from District One for his second term, and purchasing agent for the County of Los Angeles, Calif., was unable to attend this particular executive meeting. His leadership, which lifted him to the prominence of brigadier general during World War II as a procurement officer, made itself felt even in his absence through the splendid reports submitted by him to the Executive Committee.

Ira C. Jared, vice president District No. 2, purchasing agent for the Texas Division of Sun Oil Company, Dallas, Texas, represented the associations of Dallas, Fort Worth, Houston, Oklahoma City, Tampico, Texas Panhandle and Tulsa. Mr. Jared was president of the

. (Please turn to page 248)

Plastics where plastics belong

A rare combination of mechanical, electrical, and chemical properties fit Synthane (our type of plastic) for a countless number of useful applications. Aside from its moisture and wear resistant qualities, Synthane is also light, dense, strong, easily and quickly machined, an excellent insulator, and a material for fighting corrosion.



This outboard motor pivot bearing (above) requires no lubrication...resists both salt and fresh water, wears long and well ... it's Synthane. If these few of Synthane's many properties suggest a possible use of Synthane in your product, let us help you—in the design stage. Perhaps we can save you time and money. Meanwhile, get further information. Send today for the complete catalog of Synthane technical plastics. Synthane Corporation, 7 River Road, Oaks, Pennsylvania.



where Synthane belongs



Speaker Warns Race Has Started

Last night a group of local manufacturers heard John R. Brown, prominent market analyst, tell them "the honeymoon in business is over." The speaker, addressing an industrial association banquet, said 1947 would see a return to the era of "best product, best sales." Warning small and large businesses alike he reported . . .



READY FOR THE "PROFIT HANDICAP"?

Cost-plus thinking and easy profits have reached the end of their rope according to all business barometers. Business is once again off to a free enterprise race.

Better products for less manhours and lower costs are now interesting production managers, product engineers and purchasing agents and they are showing intense interest in methods and materials that promise these improvements.

Synthane (our type of laminated plastics) is made to order for current designing. Its combination of properties, makes it applicable to literally thousands of uses. It is, for example, one of the best of electrical insulators. It is also moisture, corrosion and wear resistant, possesses high mechanical strength and can be quickly and easily machined.

Synthane may help solve one of your product problems. If you feel you have a use for Synthane, let us help you before you design. We may be able to save you time, effort and money and help put you "out in front" of competition. Send the coupon below for your copy of the Synthane Plastics Catalog.



Here's how to get a "Head-Start" on Competition

SYNTHANE CORPORATION, 7 RIVER ROAD, OAKS, PA.

Gentlemen:

Please send me without obligation the complete catalog of Synthane technical plastics.

Name_____

Company____

Address Zone State

SYNTHANE

PLAN YOUR PRESENT AND FUTURE WITH SYNTHANE TECHNICAL PLASTICS • SHEETS • RODS • TUBES • FABRICATED PARTS • MOLDED-LAMINATED • MOLDED-MACERATED

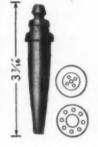


MONEL METAL HEAD for long troublefree service; furnished with straight, 75°, or 90° angle heads in various torch lengths.

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STAINLESS STEEL TUBES have greater rigidity and heat resistance - all connections are silver brazed to assure, permanent, leakproof service.

STAINLESS STEEL LEVER in a natural position for effortless operation.



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... and in addition to these outstanding, long-wearing features, this torch has GREAT versatility. It can be used for all conceivable types of cutting operations by means of many interchangeable types of cutting tips - a few of which are shown here:

STYLE 144 - For General Hand and Ma-STYLE 181 - For Riser Cutting



STYLE 197 - For Rivet Washing

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To Keep Your Buying in Tune National Convention - June

The 1947 Annual Convention and Informa-Show of the National Association of Purchasing Agents will be held at The Waldorf-Astoria Hotel, New York City, June 2, 3, 4.

The annual banquet is scheduled for Tuesday, June 3, and the Early Birds, Dinner for Sunday, June 1, both in the Waldorf Grand Ballroom.

Three half-day periods will be reserved on the program for Committee-Group-Forum meetings

Registration-reservation combination forms will be used, as in the past few years. N.A.P.A. members (and wives) will have top priority on all reservations-Banquet, Early Birds, Dinner, and Hotel.

The program will deal with practical price and production information, and theme of the meeting is "To Keep Your Buying in Tune—Be There in June."

All facilities for convention registration and hotel accommodations will be allotted first to members of the N.A.P.A. who register for the convention, an "exclusive" being granted to members up to May 1st, that is, registrations will be accepted only for members who register for the convention. If a member wishes the accomodation to include his wife, she also must be registered for the convention.

The convention registration fee is \$15 per person - man or woman. That fee includes one banquet ticket.

Early Birds Dinner tickets will be \$7.50 for a person who is registered for the convention; \$10 for a person who is not registered (the wife of a member)

Registrations and reservations will clear through the National office. They must be made on the official form.

This form provides for (1) Convention registration application; (2) Early Birds Dinner application; and (3) Hotel accommodation application. Nobody can get (2) or (3) without (1).

Forms are now in the hands of the secretaries of the local associations.

Competitive Bidding; Annual Orders vs. "As You Need

Office Records and Printed Forms;

Machine Tools and Shop Equipment.

ceding the regular meetings will be led

by T. N. McClure of Denver. As usual, a special program of entertainment has

been arranged for the ladies. At the

Warm Up Party, Governor Peterson and

Admiral Metcalfe will conduct an initia-

tion into Nebraska's Great Navy. Prin-

cipal speaker will be Dr. Wilfred Payne,

chairman, Department of Humanities,

University of Omaha, whose subject will

be "A Professor Looks at the Business

The Business Officer conference pre-

Purchasing for Faculty and Staff; Medical Equipment and Supplies;

NORTHERN CALIFORNIA ASSN. ESTABLISHES WOMEN'S DIVISION

A proposal to establish a Women's Division of the Purchasing Agents Association of Northern California, San Francisco, Calif., was duly approved at February meeting of the association, and a group formerly known as the Women's Purchasers' Association of Northern California, is now known as the Women's Division by amendment to the by-laws of the association, on the following basis:

1. Non-active membership by bona fide women purchasing agents.

2. Payment of initiation fee of \$10 and dues of \$2 per month.

3. Meetings to be held separate from male members.

4. Joint meetings, by special invitation of the Board of Directors, limited to one or two occasions a year where female guests would normally participate.

5. To enjoy the benefits of such other activities as are now afforded male mem-

The amended by-laws provide:

By-law Provisions

1. Membership applications shall be of form and content prescribed by the Board of Directors and approved by the Commissioner of Corporations of the State of California.

2. Application for women's division membership in the corporation shall be endorsed by one or more active members and filed with the secretary and by him referred to the Membership Committee. The Membership Committee shall render to the Board of Directors, a prompt and true report and recommendation upon each application.

3. The Board of Directors shall pass upon all applications for women's division membership. Applicants may be admitted to women's division membership only upon a two-thirds vote thereof.

4. Any person whose name is submitted to and recommended by the Board of Directors may be elected to honorary membership in the corporation upon a two-thirds vote at any meeting of the members.

5. Each person admitted to women's division membership or elected to honorary membership in the corporation shall, before the issuance of a membership certificate, agree in writing to abide by its Articles of Incorporation and Bylaws.

The following new article governing the activities of the Women's Division was written into the by-laws:

Section 1. The Women's Division of the Corporation may elect officers, appoint committees, conduct meetings, and otherwise act independently of the corporation; it shall not attend meetings or other activities of the corporation unless authorized by the Board of Directors, but shall be accorded all other benefits of membership in the corporation as may be enjoyed by other inactive members.

Section 2. The corporation shall not be held liable for any of the acts of the Women's Division; nor for any indebtedness incurred without specific authorization of the Board of Directors.

Educational Buyers to Meet at Omaha "Back to Purchasing" Convention Theme

Them":

Food Purchasing;

Office Machines;

Classroom Furniture:

Office Supplies;

Editor Stuart F. Heinritz of Purchasing Magazine will keynote the 26th Annual Convention of the Educational Buyers Association which is scheduled to be held in Omaha, Nebr., April 30-May 3, with a talk on "Back to Purchasing."

The Fontenelle Hotel is convention headquarters. The speakers' list also includes Dr. Ernest V. Hollis, Chief of Veterans Education Facilities program, U. S. Office of Education, Washington, who will speak on the Acquisition of Surplus Property; Earl Hall, editor, Mason City, Iowa, Globe Gazette; and Carl M. F. Peterson, Superintendent of Buildings and Power, Massachusetts Institute of Technology.

Feature of the meeting will be the "Back to Purchasing Panel", at which the following subjects will be discussed:

Administrative Organization of Purchasing Departments;

Relations with Vendors: Cash and Education Discounts;

and Utah.

Officer."

The organization was formed as the result of a small informal committee of state purchasing officials who had been working with the Council of State Governments for several years on special projects, such as developing ways and means for the administration of the war surplus property program and making special arrangements to secure certain items in short supply such as flour, textiles, and meat.

It was felt that there was a definite and growing need for such an organi-(Please turn to page 254)

ORGANIZE ASSOCIATION OF STATE PURCHASING OFFICIALS

George J. Cronin, Purchasing Agent, The Commonwealth of Massachusetts, Boston, Mass., was made president of the National Association of State Purchasing Agents, which was organized in Chicago at meeting at the Stevens Hotel in that city on January 1 and February 1, by a group of sixteen delegates representing 13 states, namely, Iowa, Kansas, Louisiana, Michigan, Missouri, Nebraska, New Jersey, New York, Massachusetts, Ohio, Pennsylvania, Rhode Island,

220

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Women's Division of Washington Association Headed by Lucille Graham, Seattle



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Purchasing Agent, Bon Marche, Seattle
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Centennial Flour Mills Co., Seattle
SECRETARY



DOROTHY BROWN
Purchasing Agent, Packaging Sales, Seattle
VICE PRESIDENT



EVELYN DUNKER
Asbestos Supply Co., Seattle
TREASURER

Price Outlook and Plant Visitations Discussed at Connecticut Meeting

Dr. Lewis A. Haney, professor of economics, New York University, New York City, addressed 115 members of the Purchasing Agents Association of Connecticut at their February 25th meeting held at Waverly Inn, Cheshire, Conn., on the subject of "Fundamental Factors on the Outlook for Prices in 1947."

He prefaced his talk with the recommendation that purchasing agents read the book "Control of Inventories" by Walter F. Skuse, who was one of the outstanding men on the War Production Board during the war period.

Dr. Lewis stated that markets will stabilize gradually and that the time is soon coming when buyers and sellers will have sound basis for their operations. He said that there would be a period of irregularity for the first half of 1947, that there would be a let-down, but that it would not be marked recession. He stated that the tendency of prices is to round off and that he looked for a drop before long in the semi-manufactured goods group.

He warned that purchasing agents should keep a weather-eye on the general economic situation, stating, however, that in his opinion there is no basis for the feeling that we "must have a great big bust." Continuing his talk, he said that there is no strain on the banking struc-

ture and that the banks are in a strong position. Inventories are getting better balanced but there is no possibility of over-production within the next six or eight months.

Conditions affecting the use of funds are more favorable than they have been for a long while, he declared. Business loans have increased and loans on government securities have been reduced. One of our major problems, he said, is that we now have three times as much money as we can use, and we must find a way to use the stuff. The banks have around a hundred billion dollars of demand deposits. Wages will remain high, and labor will hold on to what it has. Labor troubles and strikes in 1947 will be at a minimum. Labor is beginning to "see the light", and Congress is going right ahead with labor legislation. Labormanagement relations are comparatively peaceful. The CIO is losing out; it is having difficulty in maintaining its membership and is getting ready to sell out to the AFL.

Money is the only thing that we have too much of, and we must have a higher price level to put it to use. The logical way to look for readjustment is to raise prices that are too low rather than to put down prices that seem too high. We

(Please turn to page 224)



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OIL-FILLED . OIL-FILLED OIL-FILLED (Continued from page 222)

should adjust our sight to the idea that the one thing of which we have a surplus

Plant Visite

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At the forum preceding the dinner meeting, the subject of plant visits by purchasing agents and their buyers was discussed. It was the consensus that visits to suppliers should be made regularly, especially where volume and regular purchases were being made. Trips to supplier plants, it was pointed out, enabled the purchaser to get personally acquainted with the personnel of the supplying company, paving the way for interchange of ideas and suggestions about production problems, delivery, prices, and other matters. Of importance, it was emphasized, was the fact that plant visits enabled the purchasing agent to get a first-hand picture of a supplier's facilities. Frequency of visits, it was stated, depended largely upon the nature of the relationships that existed, products, bought, delivery, production problems, etc. In some instances, visits might be limited to one or two times a year, and in some cases they should be quite frequent depending upon the problems requiring attention.

It was stated that calls by salesmen could not take the place of plant visits for the reason that salesmen generally are not familiar with production facilities and other factors that have a bearing on a supplier's ability to meet a buyer's requirements.

In this connection it was emphasized that it is necessary for the purchasing agent to keep abreast of technological developments in order that he may do the best job of buying, and plant visits among other things are of great value not only to help a purchasing agent know his suppliers personally, but to acquire a broader knowledge of new facilities and processes. Furthermore, they enable buyers to learn about the ability of suppliers to handle unusual jobs. And, it was stated, that the practice of visiting several makers of the same product, if possible, was of especial value. In the matter of reporting to superiors about plant visits, it was stated that such visits were a part of the purchasing agent's job and detailed reports of visits were not necessary.

1 1 1 ROCHESTER INDUSTRIAL BUYERS HEAR LECTURE ON RUBBER

Dr. Lewis Marick spoke before the Rochester Association of Industrial Buyers at its February 12th meeting in the Normandie Hotel. In addition to his talk on the characteristics and physical properties of rubber, Dr. Marick presented several demonstrations illustrating the transfer of energy from one point to another in relation to vibration, emphasizing his talk with slides of charts and diagrams. Slides were also shown illustrating applications of various rubber mountings for industrial uses as well as the composition, vibration, absorption and elasticity of some of the compounds.



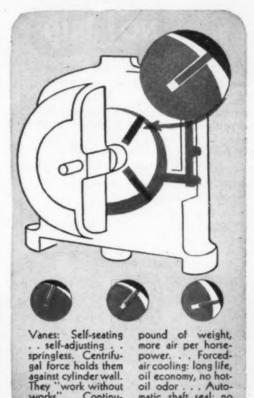
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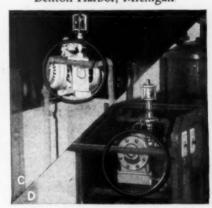
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C. G. Campbell, President

KEWAUNEE MFG. CO., ADRIAN, MICH.

(Continued from page 214)

officers have done-and I am inclined to be somewhat sympathetic and tolerant of the occasional necessity to fill in with the entertaining type of program that is easier to arrange on short notice. Also, I have never objected too strenuously to the customary annual Christmas party or summer golf party, although it is possible that some associations spend entirely too much money for their own good on these functions.

It may interest you to know that your thesis revived in my memory the recollection of a statement which I made in my report of March 17, 1945, as national director to the 6th District Council meeting held in Toledo. Under the heading of "Average Attendance at Monthly Meetings," I said, "Strangely enough, the lowest membership attendance is at our 'social' meetings, like the annual Christmas party and the annual early summer party. The highest attendance is always at meetings where a good, serious program is scheduled."

In my report as 6th District vice president, to the National Executive Committee at meetings November 2 and 3, 1946, in Pittsburgh, I said under the heading of "Attendance " the following: "It seems apparent that many members join an association for the main purpose of getting the weekly N.A.P.A. Bulletins and other releases, with no intention of attending meetings regularly. Also, it is no doubt true that some people just don't like to attend meetings! As in any organization, the more people that the president can get to take part in the work of the association, the more interested members he will have. That suggests one big advantage in having well-planned commodity discussions. As many as six or eight members can be asked to prepare material in advance for such a program."

In this connection, the Pittsburgh Association tried out an "Information Please" type of program last Tuesday night which had the same advantages as those just mentioned. Since I was making an official visit as 6th District vice president to the Tri-State Association in Huntington, W. Va., the same night, I was unable to be present at the Pittsburgh meeting. However, from all reports, it was a very successful meeting

and member interest ran high.

You can be assured from the above that I greatly approve your text and the discussions which you have developed therefrom.

Eliminating Headaches

WM. J. YOUNG **Baltimore** Association

T the recent meetings of our associa-A tion we have been trying to put more emphasis on subjects intimately related to the purchasing agent's problems. While talks on atomic energy and Amazonian head hunters may have some general interest, we feel that now. more than ever before, the average purchasing agent is becoming price-conscious and

(Please turn to page 228)





Counter wheels in postage meter mailing machines and similar devices must be accurately manufactured to close tolerances—and at the same time must possess the wear resistance to stand up under continuous operation without changing their dimensions. Bridgeport's Duronze V (silicon bronze) is very satisfactory both from the standpoint of service to the ultimate user and manufacturing economies.

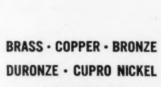
The remarkable malleability of Duronze V, even when hard drawn, makes it ideal for precision, cold-forged parts, which usually average above 100,000 psi in tensile strength. Duronze V wire is generally supplied from 70,000 to 90,000 psi in tensile strength. It is exceptionally resistant to season cracking and to fatigue failure from vibration and sustained stresses.

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(Continued from page 226)

would rather hear about price trends, availability of materials, etc.

We have been trying with increasing success to have the members take part in discussion-type meetings and find that, while it is difficult to get most of the fellows to talk about their problems, after the ice is broken by one or two, participation becomes general and an interesting, profitable meeting results. Discussion-type meetings, however, need to be conducted with care since digressions from the subject at hand can cause discussion to run all over the lot.

We also feel that the meeting covering descriptions of commodities has its place, but such subjects need to be chosen wisely so that they are of value to a great percentage of the members.

There are many problems common to most purchasing agents, and while some of them are small in themselves, when multiplied by the number of buyers, they actually constitute major problems. Off-hand I can think of the cash-discount situation which definitely needs standardization, and the transportation charge confusion. The buyer who has to tie in freight charges with individual purchase orders is in a spot when he receives a freight bill covering shipment from a supplier with whom he has placed a dozen orders, calling for:

10 BDLS IR CSTGS 1800 LBS \$16.44
This situation might be simply corrected by having all shippers include the purchase order number as part of description of commodity on the bill-of-lading, for I feel that the freight bill would then read:

10 BDLS IR CSTGS 12345 1800 LBS

Many such headaches, about which we can do nothing as individuals, can be corrected by our weight as an organization. We need to know what the problems are. We can find out by intelligent discussion at meetings. We can probably correct a large percentage by passing the information along to the National and by working closely with it.

Open Discussions on Everyday Problems

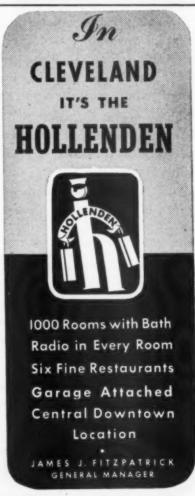
JOSEPH E. PARSONS St. Louis Association

Tread with interest your composition titled, "Local Association Programs." There is always a great temptation to speak dogmatically on "many" of the associations. One might be critical of the programs of one association or several associations or programs for a certain period, but to take them all in, in one full swoop is a little ambitious.

In our particular association the president is responsible for the programs. There is no program committee and the president carries the responsibility for the programs. This may be a little unusual arrangement but it has been tried over a period of many years and it works. In my position as president this year, therefore, I have been very interested

(Please turn to page 230)





save assembly time... avoid breakage losses

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HIGH-CARBON HEAT-TREATED
CAP SCREWS

DOUBLE EXTRUSION

Your experience with threaded fasteners tells you better than we can how well worth while it is to use Top Quality cap screws. The extra toughness and dependability of Cleveland High Carbon Heat Treated Cap Screws give you full assurance of a wise selection. You get the best that money can buy at only slightly higher cost than 1020 bright screws. Complete range of sizes from ¼" to 1½" diameter. All Cleveland products are made by the Kaufman Process—the modern cold forging method that assures you stronger threaded fasteners than any other known process.

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RAWHIDE... that's the material which gives you everything you want in top grade "soft" hammers and mallets. And Chicago means the best in Rawhide. C/R mallets and hammers are made from resilient, tightly coiled rawhide. They absorb shock, deliver powerful blows yet protect delicate machinery and surfaces, and stand up under continuous hard use. They do not split, crumble, or mushroom. Whenever you need durability, power and safety, always specify Chicago Rawhide hammers and mallets.

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Other C/R maintenance products are: round, flat and twist belting; belt pins and belt lacings; gears, pinions and gear blanks; aprons and hand leathers; hydraulic packings.

(Continued from page 228)

in the programs of the associations. I have looked over the list sent each month by the National and there are always many meetings that I should like to attend. During this year I have attended a meeting at Kansas City and one at Chicago and I must say the programs were interesting, thought provoking and beneficial.

In your article it was stated "many" local meetings are out of step and they may have good speakers, but they talk about the mysteries of Tibet, or the Ghost of Hitler, etc. Instead it is suggested there be speakers on "Work Simplification in the purchasing department." This is good, but, I do not believe the membership at large would want this at every meeting. You need diversified programs and no matter how interesting the subject of "Purchasing" is to your members, I doubt if that is all they care to hear about at each meeting.

There are members keenly interested in the study of purchasing and for these members there are universities that have this study in their curriculum. Also, in our association there is an educational committee.

Our committee chairman this year, incidentally, has carried along what we think is a new idea in this connection. So many times it is thought that this committee should supervise or instruct in schools or places outside the organization. In our scheme of things, the members are educated. And who does the instructing—the members themselves—and who is better qualified? This is how it works:

"Not a Lecture Course"

For a period of 45 minutes (it is best to limit the time) just before the regular meeting a members only group, meets in a closed room. At the outset the chairman let it be known it was "Not a lecture course," and those present began to discuss their problems openly. As an example one member said, "How do you fellows handle your printing—ours is rather neglected and we have been just letting it take care of itself." Another member will say, "Well, we do it this way," etc. You can well imagine the number of practical, down to earth ideas that come out of such a meeting.

To get back to local programs, they should be interesting and diversified and they also should have a plan or purpose. In the fall of last year, when all eyes were looking toward Washington, we had the Washington representative of a large steel company come to St. Louis and talk on "Current Happenings and Trends in Washington."

In November when copper was breaking wide open, we were fortunate in getting the Chief of the Brass Mill Branch of the Copper Section of the Civilian Production Administration to address our meeting. In between at our October meeting the program was educational in nature with a technicolor film and talk on carbon.

Each year in January our association (Please turn to page 232)

n·B·m Bronze Parts Better Bronze Parts



CONSIDER THE N-B-M FIELD ENGINEER A MEMBER OF YOUR STAFF

When you're in a jam on bronze parts or bearings—call for a N-B-M "trouble-shooter"!

Our Field Engineers are always alert to help improve performance or solve technical problems for you.

N-B-M Field Engineers may have the answer to your bronze part problems. They will serve you whenever you need them.

N · B · M BRONZE PARTS

We put more service into them you get more service out of them



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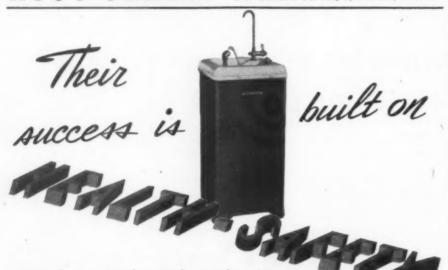
NATIONAL BEARING DIVISION

PLANTS IN: ST. LOUIS, MO. . PITTSBURGH, PA. . MEADVILLE, PA. . JERSEY CITY, N. J. . PORTSMOUTH, VA. . ST. PAUL, MINN. . CHICAGO, ILL.



RUST-OLEUM CORPORATION

2439 Oakton Street, Evanston, Illinois



Year after year Halsey Taylor Drinking Fountains and Coolers have never failed to provide the utmost in health-safe sanitation and trouble-proof service throughout Industry. Styles and models to suit any particular type of installation.

THE HALSEY W. TAYLOR CO. . WARREN, O.

Halsey-Taylor
DRINKING FOUNTAINS



(Continued from page 230)

has its Executive Night Meeting, when executives of association member firms are invited to attend. Our speaker this year talked on "Conditions Affecting Business" and his speech was followed by short talks by three St. Louis business leaders on "What's Ahead for Business." This year the meeting was attended by 469, just about the capacity of the banquet hall. The meeting does much to promote good will for the association and for its members. The event has become one looked forward to by many leading business men in this section. So much for examples and types of program.

The only fair way to judge each association is by attendance. If they do not have satisfactory programs the attendance will fall off, and quick. Also the membership would drop off in a relatively short time. Apparently things cannot be too bad, because it is my understanding attendance and membership are at an all time high.

Criticism of programs should be dealt out sparingly and it should be remembered some of the associations are not always well located, geographically to secure speakers and few if any are financially in a position to pay speakers' fees.

To compare local meetings with the N.A.P.A. annual conference is just a little unfair. The program of the annual conference is expected to be, should be, and is superb.

I appreciate the opportunity you have given me of commenting on your article. You certainly must have done a good job with it to draw me out to this extent. Please continue your good work.

National Code an Excellent Guide

H. F. JONES
Philadelphia Association

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Rei

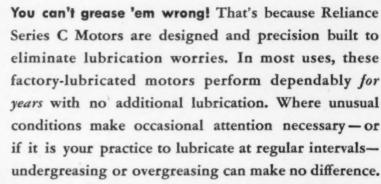
THE Natoinal Association of Purchasing Agents advocates a code of Principles and Standards of Purchasing Practice. This code of ethics, although written many years ago, has been and still is a good navigational guide which we may use in the conduct of our office. Paraphrased, the code calls up the purchasing agent to give first consideration to the interests of his company, to believe in and carry out its policies, to be receptive to and guided by counsel from his colleagues and to obtain the maximum ultimate value for each dollar of expenditure.

The purchasing agent is advised to familiarize himself with materials and manufacturing processes, to subscribe to honesty and truth in buying and selling, to be courteous to callers, to respect obligations and require that others respect them. He is asked to counsel and assist fellow purchasing agents in the performance of their duties and to cooperate with all individuals and organizations engaged in activities designed to

(Please turn to page 236)



RELIANCE Series C MOTORS



Send coupon below for the whole story of how Reliance Series C Motors end your lubrication worries!

RELIANCE ELECTRIC & ENGINEERING CO.

1056 Ivanhoe Road



Cleveland 10, Ohio

Appleton, Wis. • Birmingham • Boston • Buffalo • Chicago • Cincinnati • Denver • Detroit • Gary Grand Rapids • Greenville, S. C. • Houston • Kansas City • Knoxville • Los Angeles • Milwaukee Minneapolis • New Orleans • New York • Philadelphia • Pittsburgh • Portland, Ore. • Roanoke, Va. Rockford • St. Louis • San Francisco • Seattle • Syracuse • Tampa • Tulsa • Washington, D. C. Sao Paulo, Brazil

RELIANCE DC MOTORS

This special bearing design protects

Reliance Series C Motors indefinitely!

d

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RELIANCE ELECTRIC	&	ENGINEERING	COMPANY
1056 Ivanhoe Road			
Cleveland 10, Ohio			

Please send me your Bulletin C-118 which explains the advantages of Reliance Series C Motors.

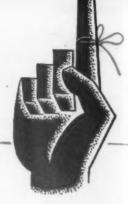
NAME.....TITLE....

COMPANY

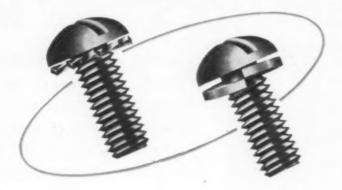
ADDRESS.....

CITY.....STATE.....

no chance to forget



the lock washer



Quality control is written into your purchase order when you specify SEMS, for SEMS bring you both screw and washer pre-assembled as a unit. The washer can't fall off!

Driving is easier, faster . . . no finger-fumbling, no lost

washers. Inventories are always in balance. Remember, SEMS you eliminate the entire washer and screw asse operation right on your purchase order!

Write any listed manufacturer for free SEMS Data

use

SEMS

the MODERN fastener unit

SEMS are Pre-Assembled Washer and Screw Units in which the Wisheld on the Screw by the Rolled Thread and is free to re

SEMS ARE AVAILABLE FROM THE FOLLOWING MANUFACTURER

Corbin Screw Division
The American Hardware Corp.
New Britain, Conn.

Eaton Manufacturing Co.
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Massillon, Ohio

The Lamson & Sessions Co. Cleveland, Ohio National Lock Co.

The National Screw & Mfg. Co. Cleveland, Ohio

> New England Screw Co. Keene, N. H.

Phealf Manufacturing Co. Chicago, Illinois Russell, Burdsall & Ward
Bolt & Nut Co.
Port Chester, N. Y.

Scovill Manufacturing Co.
Waterville Division
Waterville, Conn.

Shakeproof Inc.
Division of Illinois Tool Works
Chicago, Illinois

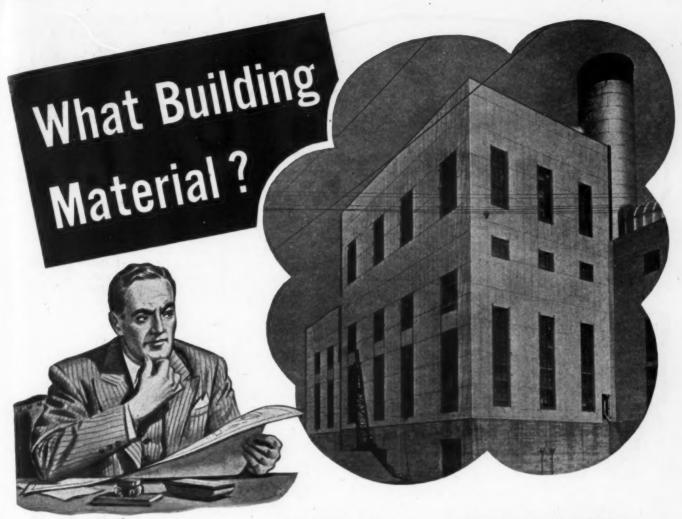
Steel Co. of Canada, Ltd. Hamilton, Ont., Canada

> Stronghold Screw Products Inc. Chicago, III.

American Screw Co. Providence, R. J. Central Screw C Chicago, III.

Chandler Products
Cleveland, Ohio

Continental Screw New Bedford, Ma



K&M "Century" ASBESTOS CORRUGATED

What will determine the choice of building materials for your new plant, or remodeling job? Will it be—

Appearance?

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ducts d, Ohio

Screw rd, Mas First cost?
Construction economy?

Speed of application? Resistance to fire, weather, rust, other conditions?

Strength, durability?

Freedom from painting and other upkeep?

Regardless of which of those qualities you seek, K&M "Century" Asbestos Corrugated is an ideal choice, for it incorporates all of them in every rugged sheet. Being made of indestructible asbestos and Portland cement, it can't burn, can't rot, can't rust. Considering these many advantages, its cost is moderate, and it will pay for itself many times over in long maintenance-free life.

"Century" Asbestos Corrugated is easy to cut with portable electric or band saw, and easy to drill for drive screws or bolts. Cutting and fitting time is held to minimum because of 19 available sheet lengths. Salvage value is practically 100%.

If you'd like further information about "Century" Corrugated, write us, we'll be glad to help you.

INSTALLATION DETAIL



RIDGE ROLL

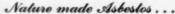


VARIOUS SHEET LENGTHS AVAILAB



CORNER ROL

KEASBEY & MATTISON COMPANY · AMBLER · PENNSYLVANIA



Keasbey & Mattison has been making it serve mankind since 1873





ARE MADE FOR WIPING!



Yes sir, they are uniform, smooth-textured wiping towels—made from new fabric woven for Industrial wiping towels, delivered to you thoroughly cleaned by a special high heat process—on regular schedules as required.

Their soft cotton texture is safe to use on any highly polished or sensitive surface. No hard seams, no hidden grit, no over-looked buttons, such as often turn up in make-shift wipers.

Instead, every KEX Industrial Wiping Towel is made for the important wiping purpose to which you will put it. Edges are bound to eliminate catching onto machinery. Surfaces are smooth and free of lint. They absorb up to six times their weight in grease and oil, and give more wipes per pound than cast-off rags or ordinary wipers.

Rent KEX Industrial Wiping Towels and figure your profits

Nothing to buy—no expensive inventory—just a low monthly rental. The first month you use this service should show a decided saving on wiping costs.

For complete information, see your classified Telephone Directory for nearest KEX distributor, or write KEX National Service, 295 Fifth Avenue, New York 16, N. Y.



(Continued from page 232) enhance the development and standing

of purchasing.

How can our local association provide assistance to each of its members so that they can subscribe to and carry out these principles and standards? We should provide a climate in which the seed, once sown, can germinate, flourish and grow to full stature. We should provide a place where members of the purchasing profession can meet on common ground, discuss their mutual problems and enjoy good fellowship in a congenial atmosphere.

Our forum meetings should afford us the opportunity to talk over those day-to-day problems which all of us are called upon to solve. The meetings should be so arranged that both those who come to talk and those who come to talk and those who come to issen may participate. The men responsible for running these forum meetings will attempt to organize their programs so that items of general interest

will be presented.

Our evening meetings should provide a place where purchasing men may learn something of specific and general interest. Outstanding citizens of the business community should be invited to appear before us and should be given the opportunity to express themselves. Thus we may learn something of the background against which the every day drama of business history is enacted. This background information will prove extremely valuable in interpreting the succession of events which move before us daily. Meetings of this type should be both informative and inspirational. If we can hear an outstanding business leader who can express himself well, we cannot fail to be inspired to go out and do a better job for our companies.

We would be unfair to ourselves and to each other if we took ourselves too seriously. We ought, therefore, to meet together occasionally to relax and enjoy ourselves. A year-round recreational activity should be sponsored by the association. Our bowling and golf committees are organized to provide such a program. The men who participate in these activities are enthusiastic about them. Others who have not done so are

invited to share in the fun.

Family Type Discussions

EUGENE BROWN
Reading Association

YOUR letter and the accompanying reprint from Purchasing emphasize a condition which I feel warrants live attention. Our own association has given this some thought, but because ours has a modest membership, our problems and experiences are not always comparable to those of the larger groups. At least we have fewer members to satisfy and no politics to influence the design of programs. Then, too, we have been able to experiment with various shades of subject matter without too many flying tomatoes.

Our subject matter during the last (Please turn to page 238) re nd

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Nepcoduct

FOR CONVENIENCE OUTLETS IN THE FLOOR

if you want . . . SIMPLICITY . . . PERMANENCE

• Pre-determined outlets on 24-inch spac-

• New streamlined service fittings of durable brushed brass. Installed whenever needed—quickly—economically.

ing provide plenty of service to desks and

free-standing equipment.

• A simplified duct of one standard size—
13%" x 21%"—for both high and low potential runs. Eliminates confused specifications . . . easier to understand . . . easier to lay out . . . easier to order . . . easier to install . . . easier to maintain.

• Minimum number of junction boxes and fittings required for one-, two- or three-duct layouts. The number of parts have been reduced more than 60%.

 Installed without excess labor or interference in all types of conventional floor construction.

• NEPCODUCT is a steel raceway system providing complete mechanical security and electrical bonding as required by the National Electrical Code. Fully approved by Underwriters' Laboratories, Inc., for both high and low potential service.

 Let us send you complete information. Call our sales office nearest you, or write to the address given below.

Dependent The STEEL

Underfloor Distribution SYSTEM

(Left) Low poten-

tial service fitting.

(Right) High potential service fitting.

Streamlined design

ish-simple, strong

construction.

brushed brass fin-

One standard-size duct—smooth, welded construction—rounded corners, for strength in floor construction.

National Electric Products Corporation
Pittsburgh 30, Pa.





In designing power-operated equipment within a 2 to 4 hp. range . . . one of the vitally important considerations is to secure a power unit that can be depended upon for heavy-duty serviceability.

This is one of the predominant characteristics of the little Models AB and AK Wisconsin Air-Cooled Engines. Every detail of design and construction . . from the Timken tapered roller bearing mounting of the crankshaft front and rear, to the mirror-honed cylinder . . . has been engineered for heavy-duty operation under rugged conditions. These engines are equipped with rotary type outside magneto impulse coupling, assuring quick, easy starting in any weather, at any season.

Write for detailed specifications and other pertinent data. Wisconsin Air-Cooled Engines are available in 4-cycle single cylinder and V-type 4-cylinder models in a complete power range.

WISCONSIN MOTOR Corporation MILWAUKEE 14, WISCONSIN

World's Largest Builders of Heavy Duty Air-Cooled Engines

JOHNSON XLO Music Mire

The wire of a thousand uses . . . specially proc-essed rod . . . cold drawn to exact size. . furnished with smooth bright pol-ished surface. So diversifield are the uses of Johnson's XLO Music Wire that it is furnished in a wide range of sizes - to meet every commercial need -.003" to .200". Packaged in boxes containing ¼ lb., 1/2 lb., and 1 lb. Any desired quantity from 1/4 lb. to carloads.

If your distributor cannot supply you immediately, please advise.



OHNSON STEEL & WIRE CO., INC.

WORCESTER I, MASSACHUSETTS.

(Continued from page 236)

one and one-half years has centered largely around the idea of self-education. This for the reason, we felt that indirectly it was one way of helping our members sharpen the tools needed to promote their welfare and to help them subjugate the boss when necessary. But so little can be accomplished in the few available hours before the annual turnover of officers, that we are now trying to promote freer exchange of personal experiences, and also, to lure away the modest reluctance of some to unveil their problems.

A large proportion of our members seem to enjoy the family type of discussion, and as the ball passes back and forth, the meeting grows interesting and sometimes exciting. I think some of our most enjoyable meetings have resulted from discussing our own problems.

I don't believe in a steady diet, however, and feel the meetings should occasionally include invited talent of recognized ability to stimulate new visions. Personally, I feel the subject matter should stick largely to the subject of purchasing.

It is not an easy job to repeatedly prepare and arrange interesting formal programs and stick to the subject of Purchasing. Too often the Program chairman finds his time running out or funds lacking or last minute regrets from the speaker. Then he may run out of ideas and turn to some form of pleasant entertainment which is probably justi-fied on occasion but which repeatedly is not worthy of the national respect bestowed on our association.

I feel that some of our time should be devoted to studying the ever-changing pattern of business weather so that by enlarging our view of conditions we might often help the boss to worry more

rationally.

I have often noticed the respects paid our association by publications that re-print our opinions of business conditions. These opinions result from the collective observations of capable individuals who are a credit to us. I feel that we can elevate further the prestige of the individual and consequently the association by encouraging the use of nourishing subject matter.

Association Groups Sponsor Programs

R. G. WILLIAMS Dallas Association

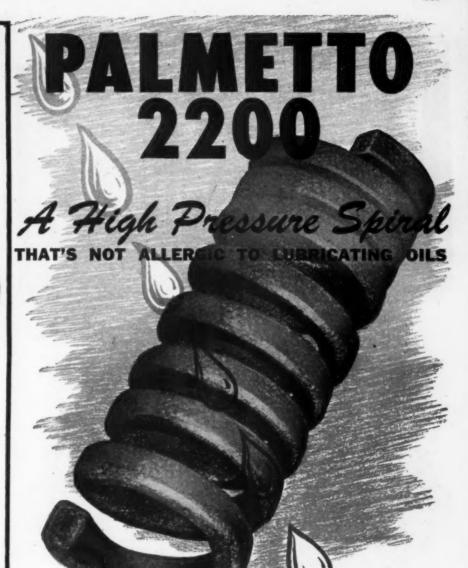
WE here in Dallas are planning to devote more time in the immediate future to subjects closely related to purchasing and its various ramifications. The membership has been organized by groups of allied businesses (construction materials, governmental and institutional, industrial supply, public utilities, and oil), and each group will undertake to sponsor one or more programs during the coming year. Such programs for the most part will have to do with purchasing and purchasing problems concerning the particular group sponsoring the in-

(Please turn to page 240)

WHEN HE COOLS OFF THE BASA GENIE WILL TELL HIM ABOUT



You can understand why the irate gentleman above is irate-if you've ever had to do a job with a mushroomed rawhide hammer. Greene, Tweed, one time manufacturer of one of the finest rawhide hammers obtainable, recognized this shortcoming even in the finest and undertook the task of developing a superior material-that would be safer, more durable and retain its efficiency throughout its longer life. After extensive research, resilient BASA, the all-purpose striking face, was born. It lasts twice as long as rawhide . . . doesn't mark . . . wears down evenly ... is quickly replaced in your BASA replaceable face hammer. For complete descriptive literature and location of nearest distributor, write Department B, GREENE, TWEED & CO. -North Wales, Pa.



tough enough to withstand gruelling punishment from heat and pressure but when lubricating oils begin their deteriorating attack, ordinary High Pressure Spiral packing quickly disintegrates causing possible equipment damage, loss of time and loss of money.

Palmetto 2200 gives you complete protection while it stands up and serves throughout its long life. This oil proof High Pressure Spiral because of a special binder, years of "know how" and the finest materials available will resist all the harmful effects of oil, heat and water.

All Palmetto Packings enjoy an enviable reputation . . . Write for descriptive literature.

GREENE, TWEED & CO. - NORTH WALES, PA.

PALMETTO In the United States and Canada There is a Distributor Near You

SEND THE	GREENE, TWEED & CO., North Send literature please	Wales, Pa. Send a representative please.
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VALVE MAINTENANCE SIMPLIFIED!

There are fewer parts to be carried, repairs are more quickly and easily made. The labor, time, and expense of valve maintenance is cut down—'way down!

SAVE THIS WAY, TOO!



Fig. 16



For severe throttling service, a regular type can be converted into a plug type, by simply changing the seat and disc, without taking the valve out of the line.

Thus it's not necessary to buy a whole new valve—just a matched set of plug type seat and disc which interchange perfectly in corresponding patterns and sizes in a range of pressures from 150 to 350 lb. S. P.

Lunkenheimer simplicity of design, mini-mum number of parts, and fine precision workmanship make this and other out-standing economies possible.



SEE YOUR LUNKENHEIMER DISTRIBUTOR

Lunkenheimer Distribu-tors are located in all industrial centers. There industrial centers. There is one near you—have him demonstrate with actual samples the interchangeability of parts in "RENEWO" and "FERRENEWO" Valves. It's a big time and money saver for any plant!

THE LUNKENHEIMER CO., Cincinnati 14, Ohio (OFFICES: NEW YORK 13, CHICAGO 6, BOSTON 10, PHILADELPHIA 7.

EXPORT DEPARTMENT: 318-322 HUDSON ST., NEW YORK 13, N. Y.)

(Continued from page 238) dividual program although this will not necessarily be an inflexible pattern. Incidentally, we think and hope that considerable latent talent in our member-ship may be brought to light by the participation of such a large number of members in the program.

Fundamental Matter and Plant Visits

GEORGE L. WILSON Alabama Association

am sure that it is worthwhile to call the attention of local officers to the fact that our programs should deal with fundamental purchasing subjects.

This matter was discussed informally last week at the Executive Committee meeting in Houston, which I had the pleasure of attending as a guest. All the members expressed the opinion that too many local programs feature subjects and discussion foreign to purchas-

Besides the facts brought out so well in your article, there are some fine possibilities in the scheduling of conducted plant visitations. There is much to be learned by the average purchasing man and woman in visiting manufacturing and distributing facilities and the contacts with production and sales executives are enlightening. It also encourages good fellowship among the purchasing agents to make these visits together in a body representing the association.

I think we should all stress the importance of developing programs of practical value to our members.

Round Table Discussions

E. G. SWANSON Vice President, District 3

WITH reference to "Subject matter at Association Meetings." It must be remembered that most of our associations, even the small ones, are made up of members from various types of industry, merchandising, and publishing and printing enterprises. This makes it difficult to provide subjects of the utmost interest to everyone at all times. However, there are subjects in which all buyers are interested, such as:

1-General Business Conditions

2-Price Trends

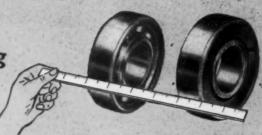
3-Purchasing Department Policies and Procedures

No doubt, the industrial buyer constitutes the largest percentage of membership of the average association in the N.A.P.A., and, therefore, a very large percentage would be interested in various commodity studies giving production figures and price trends covering such materials as steel, copper and brass, aluminum, and coal.

Other raw materials such as tin, lead, zinc, finishes, and numerous other items might not be of such general interest, but would cover enough ground to make occasional programs worthwhile.

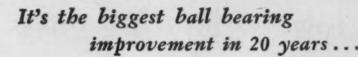
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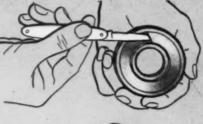
It's a sealed ball bearing



NO WIDER THAN AN UNSEALED BEARING

It's a bearing you can open for inspection or relubrication ... and seal again







FAFNIR PLYA-SEAL

• Tightest seal ever devised . . . Synthetic rubber washer, locked in groove of outer ring by split retaining ring of spring steel, makes perfect contact with inner ring. Self-adjusting because pressure is constant. Absolutely non-capillary.

No distortion of rings... Pliable, self-adjusting character of this seal removes all possibility of out-of-roundness sometimes produced by rigid type seals.

Practically indestructible... Plya-Seal is unaffected by extreme temperatures up to 175°F. and beyond or down among the sub-zeros. Most ball bearing contaminants are effectively excluded. Plya-Seals in service over 5 years are still good

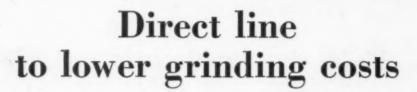
as new. The synthetic rubber washer does not age.

Yet you can remove the PLYA-SEAL with a penknife and replace it just as easily, just as tightly... and you can remove and replace it as often as necessary for inspection and relubrication without reducing its efficiency in the least.

No wider than a standard unsealed ball bearing the Fafnir Plya-Seal is the answer to your need for a ball bearing replacement that cuts maintenance time and cost to the bone. No need any longer to discard bearings too soon or keep them too long. Ask your Fafnir representative to show you PLYA-SEAL, or write for full information. The Fafnir Bearing Company, New Britain, Conn.

FAFNIR BEARINGS

MOST COMPLETE LINE IN AMERICA



Are you interested in information that may cut your grinding expenses considerably?

Such information is available through a complete analysis of your grinding operations. This analysis may reveal something you have never suspected—that you are grinding away profits every day.

To remedy the situation, call in Peninsular engineers, specialists in grinding problems since 1889. They will study your grinding from start to finish. From this study, they

will give you the answers that plug you in on the direct line to lower grinding costs.

Peninsular engineers have learned that each grinding job has special needs. That's why every Peninsular grinding wheel is specially made for its particular job.

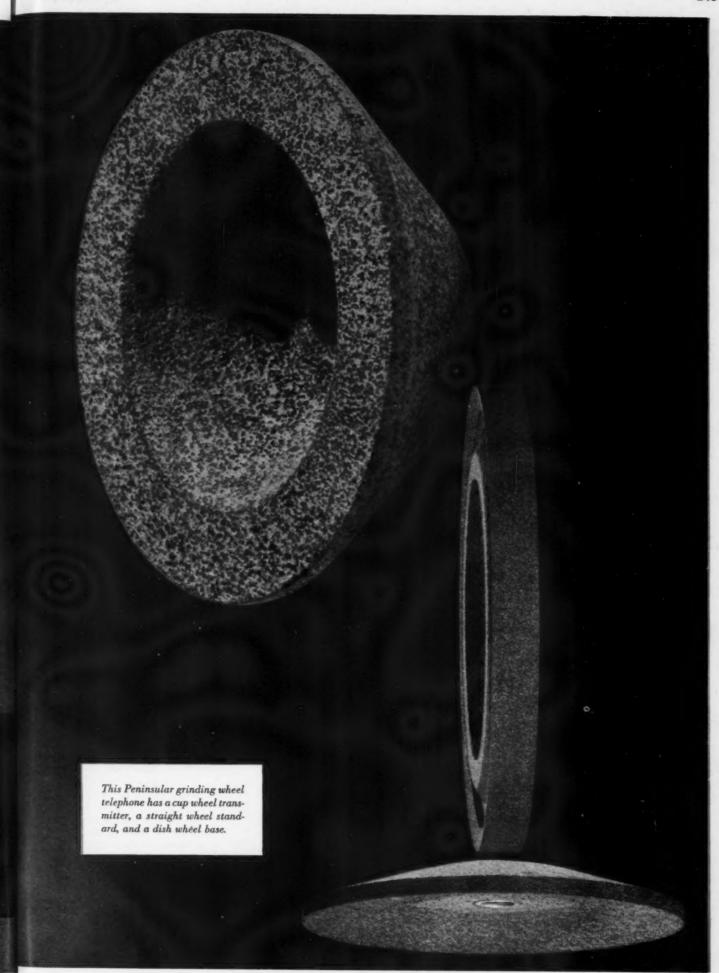
The Peninsular Grinding Wheel Co., 729 Meldrum Ave., Detroit 7. Sales Offices: Chicago, Philadelphia, Boston, Buffalo, Cleveland, Newark, Pittsburgh, Houston, St. Louis, Cincinnati.

PENINSULAR

GRINDING WHEELS

SINCE 1889

SPECIALISTS IN RESINOID BONDED WHEELS





(Continued from page 240)

In addition to the above subjects we have related ones such as cost accounting, traffic, inventories and materials handling. An occasional meeting covering various angles of merchandising and printing and publishing is of general interest to members.

Above all, we have found in our relatively small association, the Tri City Association of District No. 3, that round table discussions are of more value perhaps than any other type of meeting.

Forums Most Popular

J. M. POTTER

N. D., Carolinas-Virginia Assn.

THE problem of meetings and programs for the Carolinas-Virginia Purchasing Agents Association differ from those of most other local associations. We understand most locals meet for a three or four-hour dinner session and program once a month. This plan is not feasible in our case since our members are widely scattered over three states. Even a central location for a short meeting would require excessive travel and undue loss of time for most of our members.

Our association normally holds four meetings per year, lasting from early Friday afternoon through Saturday afternoon. We have tried to balance our programs by providing about equal time for—

1—Technical and Professional Papers and Discussions

2—General and Industry Group Forums

3-Recreation and Entertainment

General Forum Popular

One of the most popular and successful parts of our programs has been the general forum which lasts for two hours or more. In this session our forum leader calls on every member present for a question. The leader will then answer the question or call on some other member to do so. The success of a meeting of this type is very much in the hands of the leader who must be experienced and well informed regarding most purchasing problems and who can guide the questions and answers so as to prevent too much lost time on controversial issues. Our association has been fortunate in having Roy Haberkern, vice president of the R. J. Reynolds Tobacco Co., as our forum leader for the last two vears.

We believe that all local associations might well devote some of their meetings or part of their programs, to a general forum as described.

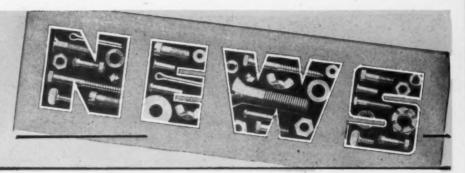
Fundamental Purchasing Subjects

R. A. BAKER

V. P., P.A.A. of British Columbia

E are firmly of the opinion that local association programs should deal specifically with the numerous (Please turn to page 246)

HARPER fastening



"MIRACLE" DRUG TOUGH ON METAL



The production of Streptomycin puts severe test on metal containers and equipment.

To produce only a few hundred pounds of finished Streptomycin—a successor to pencillin in many uses—requires processing thousands of tons of raw material and millions of gallons of water. Various corrosive broths and liquors must be continuously filtered thru specially designed filters...some built of stainless steel, some of rubber protected carbon steel and others of Inconel. One leading manufacturer of all such filters uses Harper Non-Ferrous and Stainless Steel fastenings for corrosion resistance and strength.

MONEL OR STAINLESS RIVETS?

Monel rivets are used to fasten the stainless steel plates in a cylindrical commercial laundry washer because they have desirable strength and resistance



to corrosion from the alkaline soap and bleaching agents. At the same time they are easier to work, in this case, than stainless steel rivets which normally would have been specified for the job. Problems like these are a Harper specialty.

BRONZE BOLTS REDUCE REPAIRS

Water system pipe lines present a constant maintenance problem in most cities. Iron pipe corrosion, temperature changes, vegetable growths and many other stresses

and strains cause leaks which must be plugged quickly and efficiently.

One widely used repair device, consisting in part of pipe sections and sleeves, is held in place by Harper bronze bolts which provide strength, rust and corrosion resistance, ready removability and reusability at low cost.





Write for summarized catalog listing many of the 5200 different types and sizes of Everlasting Fastenings carried in stock.

The H. M. HARPER COMPANY 2606 FLETCHER STREET

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Branch Offices—New York City, Philadelphia, Los : Angeles, Milwaukee, Cincinnati, Dallas.



HARPER SPECIALIZES IN EVERLASTING FASTENINGS



Chemically inert, bubble-free, adhesive to all metals, Kote-Masq is a *better* stop-off lacquer in every way.

It's compounded of a high polymer, in specially selected solvents. It comes to you ready to brush on or apply by dipping. Or you can dilute Kote-Masq for spraying, if you prefer. By any of these methods, two coats are all you need — with only a half-hour wait be-

tween. In final air-drying or baking, too, Kote-Masq sets fast and it won't contaminate plating solutions.

Try Kote-Masq. You'll quickly appreciate its superiority as a stop-off coating in either electroplating or anodizing solutions—acid or alkaline, hot or cold! Order a trial lot now. Kote-Masq comes in 5 Gal. and 1 Gal. cans, and 55 Gal. drums.

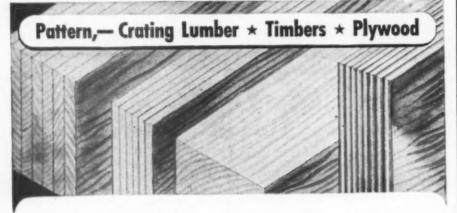
HANSON-VAN WINKLE-MUNNING COMPANY.

MATAWAN, NEW JERSEY

Manufacturers of a complete line of electroplating and polishing equipment and supplies

Plants: Matawan, New Jersey • Anderson, Indiana Sales Offices: Anderson • Chicago • Cleveland • Dayton • Detroit Grand Rapids • Matawan • Milwaukee • New Haven • New York • Philadelphia Pittsburgh • Rechester • Springfield (Mass.) • Stratford (Conn.) • Syracuse





Check Into This Timely Deal: Features 4 scarce items, PLUS the combined facilities of these three great lumber suppliers. Means less red tape. Offers best possibility of getting the lumber you need. Just send your one order to any one of the three addresses below, and it will get the pick of an accumulated supply of lumber, outstanding today in quantity and selection.



(Continued from page 244) fundamental purchasing subjects with which we are confronted.

In our own case, we are a small association of approximately 100 members and meet monthly. In addition we hold open forum meetings monthly and these meetings are, from first to last, devoted entirely to strictly purchasing matters. At our regular monthly dinner meetings, we conduct routine business of the association which generally leaves us about half an hour to spare. This time is apportioned to a good local man who talks to us on some current topic which may or may not be of a purely business nature. We have at various times conducted panel discussions at our regular meetings. In March, a statistician spoke to us on the interpretation and purpose in general of statistics by the use of charts and graphs.

At No. 1 District Council meeting held in San Francisco last month, the idea was advanced that perhaps the locals within the district would be interested in underwriting visits of such outstanding business speakers as Dr. Lewis H. Haney, A. W. Zelomek, and others. We in the British Columbia association were very much interested in this suggestion and hope it will be possible to work out something along these lines. We understand that the District vice-president is following the matter up and will no doubt have something further to report in connection with same at the next District council meeting to be held in Vancouver on April 25th.

Follow National Concention Pattern

L. A. LOWE

New England P. A. Association

In building our association programs we follow on a local scale the general pattern set by national conventions. Through our numerous activities which include commodity committees, afternoon conferences, forums, plant visits, and evening meetings we consider matters of interest to purchasing men, ranging from technical details through the broadest implications of procurement.

Following strictly the N.A.P.A. eligibility requirements we admit to membership only men whose primary interest is in purchasing. This simplifies arranging the programs, as they are not diluted in an attempt to appeal to those whose actual interest lie elsewhere.

Open Discussions

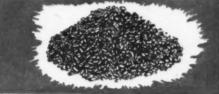
WM. B. GARDNER
P. A. Assn. of Eastern New York

WE aim to develop discussion periods at our meetings, and also commodity discussions. At our February 20th meeting, we had an educational meeting with Al Hayes (chairman, Educational Committee, N.A.P.A.), coaching us on "How to Evaluate the Purchasing Department." Possibly we will space our discussion meetings with some speakers but we (Please turn to page 248)

POUND FOR POUND...

...get 3 times as many finished parts!





R317-T machines easily to a bright, natural finish. Forms small chips. Does not run with the tool. May be worked to very close limits.

LOWER-COST MACHINING



Accurate volume production with fewer rejects. Result: lower cost, more profit per finished part.

Yes—thanks to the favorable weight factor aluminum gives you three times as many finished parts per pound as brass.

By the foot you pay less for aluminum than you do for brass. All of which adds up to a saving of about 50% in material cost.

For high speeds, excellent machinability, a bright, natural machine finish and LOWER COSTS, use R317-T, Reynolds new aluminum screw machine stock. Only a fraction of the cost per finished piece as R317-T weighs only ½ as much as brass (and other heavy nonferrous metals).

Order now. R317-T is ready for immediate shipment from Louisville warehouse stock in rounds and hexagons in all standard sizes. 17S-T, Reynolds standard screw machine stock, is also available now.

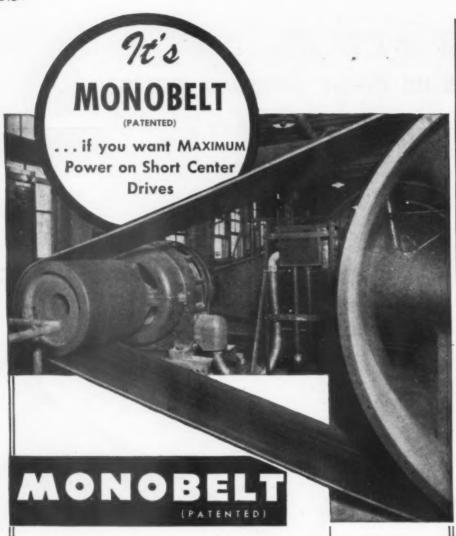
Consult Reynolds. Reynolds is ready to work with your engineers. Offices in principal cities. Phone nearest office . . . or write Reynolds Metals Company, Aluminum Division, 2525 South Third Street, Louisville 1, Kentucky. See Sweet's or write for Catalog 100-B "Reynolds Aluminum—Available now for Today's Products."



REYNOLDS

Source of ALUMINUM

INGOT . SHEET . SHAPES . WIRE . BOD . BAR . TUBING . PARTS . FORGINGS . CASTINGS . FOR . POWNE



By its superior performance and exceptionally long life, this pliable, tough, durable, waterproof belt has won the preference of operators in every industrial field.

Monobelt's ability to withstand shock loads and its high horsepower capacity is astounding to new users.

Remember, MONOBELT is made in all standard widths and with graduated thickness in engineered ratio to each width.

Try MONOBELT on that EXTRA tough drive for a happy experience.

MONOBELT 24" 3 ply driving compressor from 200 h. p. motor mounted on pivoted motor base.



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ALEXANDER BROTHERS

406 N. Third Street, Philadelphia 23, Pa.

BRANCH OFFICES
CHARLOTTE · CHICAGO · DALLAS · NEW YORK

(Continued from page 246)

quite agree with the idea of promoting subjects of practical interest to our members.

President Leads Commodity Discussions

A. R. BRANE Springfield, O. Association

THE Springfield Chapter of the N. A. P. A. has adopted the plan of every other meeting being devoted to commodity discussion under the lead of the president. Alternate meetings are on something more entertaining but yet of an informational type. We also have our special nights, such as Christmas, parties, picnics, and so on. These meetings are under the direction of the program committees.

Our Executive Committee In Action

(Continued from page 216)

Dallas association in 1927 and has been active in purchasing affairs of the south-

west for a number of years.

E. G. (Gil) Swanson, vice president of N.A.P.A. District No. 3, represented the associations of Chicago, Denver, Kansas City, Milwaukee, Rock River Valley, St. Louis, Tri-City, Twin City and Twin Ports. Mr. Swanson is the purchasing agent for the Herman Nelson Company of Moline, Ill., and has been connected with many companies on the heavy machinery field since he was 16 years old, which is not so long ago. He is an outstanding citizen in Moline and in addition to his interest in local and national purchasing affairs has taken a leading part in directing the educational program of his church.

Robert G. Matley, vice president of District 4, purchasing agent for Whitman and Barnes, Detroit, Michigan, represented the Central Michigan, Detroit, Fort Wayne, Grand Rapids, Indianapolis, Kalamazoo, Muskegon, Saginaw-Valley and South Bend associations. "Bob" Matley has held all important offices in his local associations, has served as instructor for a class in Industrial Purchasing at Wayne University, has written a series of articles on purchasing procedure for the Detroit association and is one of the leaders in N.A.P.A. affairs.

Garnet T. Dickson, vice president District No. 5 represented our neighboring Canadian associations of Central Ontario, Essex-Kent, Hamilton, Montreal, Toronto, and Winnipeg. Mr. Dickson is purchasing agent for the Goodyear Tire and Rubber Company, was born and lives in Toronto. His entire career, twice interrupted by war, has been with the above firm. He has ably served his local associations and the Canadian Council in purchasing affairs.

Ralph O. Keefer, vice president District No. 6, general purchasing agent, Aluminum Company of America, Pittsburgh, Pa., represented the associations of Akron, Canton, Cincinnati, Cleveland,

(Please turn to page 250)



Sylphon Regulators available with Dial Indicating Thermometer

Pictured above is Fulton Sylphon's No. 923-T Temperature Regulator. Long well and favorably known for its dependable performance in the control of liquid temperature . . . rugged No. 923 regulator has recently been further improved through the addition of a dial indicating thermometer.

The thermometer indicates the temperature being maintained at the regulator bulb... obviates the necessity of installing a separate thermometer adjacent to bulb. Adjustments can be made easier, quicker, and more accurately.

Also available on Sylphon Regulators Nos. 921, 921-Q, and 923-Q. For complete information, write for your copy of Catalog GO-20 today.



Handsomely illustrated catalog, prepared specifically for your industry, describes No. 923-T and other temperature regulators.



ULTON SYLPHON CO. KNOXVILLE 4. TENN

emperature Controls

Bellows Bellows assemblies



The men who operate your band saw machines will welcome this carton of a dozen MILFORD FLEXIBLE BACK METAL-CUTTING BAND SAWS . . . accurately measured and professionally welded to fit their machines.

Made of tough, electric-furnace steel, heat treated by specialists in saw metallurgy...with teeth as hard as a hack saw blade...they

give maximum trouble-free cutting life for every blade.

The proof? Try it!

Order from your Mill Supply Distributor. He is always ready to serve your needs for all factory and mill supplies as well as MILFORD hack saw and band saw blades.

and the same is true of MILFORD PROFILE SAW The original narrow band saw for all contour sawing, jig and tour sawing, aw machines.

MILFORD

THE HENRY G. THOMPSON & SON CO.

Saw Specialists Exclusively for Over 65 Years
NEW HAVEN 5, CONNECTICUT, U. S. A.

(Continued from page 248)

Columbus, Dayton, Northwestern Pennsylvania, Pittsburgh, Springfield, Toledo and Tri-State. Ralph is a graduate chemical engineer from Syracuse University, a registered professional engineer in the State of Pennsylvania; wears the key of Tau Beta Pi, honorary national engineering fraternity. Associated with the Aluminum Company for 29 years and holding many important jobs prior to his appointment as purchasing agent, he has given many addresses on purchasing as well as having contributed many magazine articles, and is this year's financial officer on the N.A.P.A. Executive Committee.

A. Grant Clark, vice president District 7, purchasing agent for McWilliams Dredging Company, New Orleans, La., represented the Alabama, Chattanooga, Florida, Georgia, Louisville, Memphis and New Orleans associations. Like Wayne Allen, Grant Clark is serving his second term on an Executive Committee, and is an active worker and leader in the purchasing activities of the New Orleans association, as well as a civic leader in his city.

James A. Cooney, vice president, District 8, purchasing agent of the International Salt Company, Retsof, New York, represented the associations of Baltimore, Buffalo, Carolinas-Virginia, Eastern New York, Elmira, Lehigh Valley, New York, Philadelphia, Reading, Rochester, Syracuse and Washingon, D. C. Jim's entire career has been connected with his present firm. In addition he is an outstanding citizen of Retsof, a member of many organizations and a leader in civic and purchasing affairs.

Charles M. Healey, vice president District 9, purchasing agent for the City of Springfield, Mass., represented the associations of Connecticut, New England, Rhode Island and Western Massachusetts. A graduate of Worcester Polytechnic Institute, he is active in the community life of his city, a past president of the Western Massachusetts Purchasing Agents Association and former national vice chairman of the Governmental Buyers group in N.A.P.A.

And Charles Sheldon

In addition to the president and the nine district vice presidents, the past national president is also a member of the Executive Committee. Charles M. Sheldon, purchasing agent, Hood Rubber Company, Watertown, Mass., who was president of N.A.P.A. 1945-46, needs no introduction to purchasing men since many met and heard him at the time of his visits to the local associations during his presidency. His leadership and counsel is wise and outstanding as demonstrated by the excellent work and reports brought by him before the Committee.

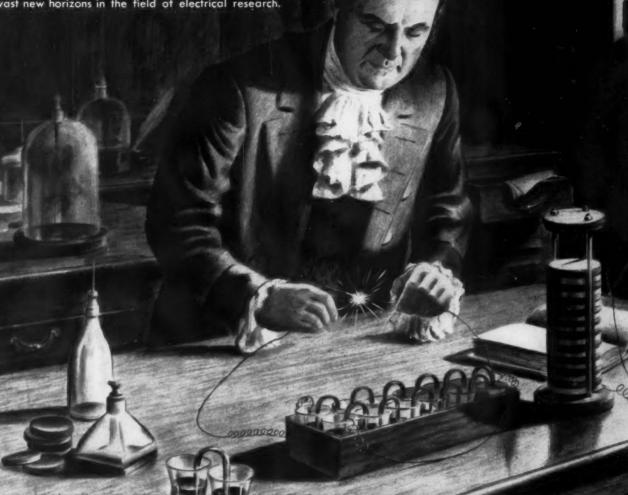
This year's N.A.P.A. Executive Committee, as usual, is represented by men who have risen to leadership in Purchasing in their respective sections.

The only member of the Executive Committee who is elected each year without opposition is the man most widely known to all N.A.P.A. members—the

(Please turn to page 253)

FIRST in producing a continuous electric current

ALESSANDRO VOLTA (1745-1827), great Italian physicist, in 1800 announced his discovery of a chemical cell for producing electricity. The voltaic pile, named in his honor, was the first electric battery. This first source of continuous electric current opened vast new horizons in the field of electrical research.



FIRST in Wire-Wound Resistors . . . Today

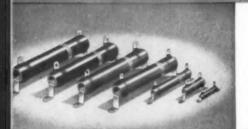


Ohmite offers the most complete line of wire-wound resistors on the market today—and these resistors have become industry's first choice. The primary reason for this popularity is that Ohmite resistors have proved their ability to give extra years of trouble-free service.



RHEOSTATS . RESISTORS . TAP SWITCHES

OHMITE Resistors Sizes and Types for Every Service



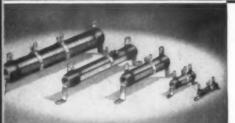
LUG TYPE

Most popular type for general purpose applications. Connected by soldering or bolting to lugs. Protected by vitreous enamel coating.

FERRULE TYPE

Winding terminated on metal bands for mounting in standard fuse clips. Provides easy interchangeability without tools.





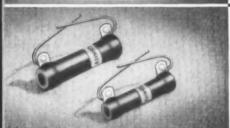
"DIVIDOHM" ADJUSTABLE TYPE

Provided with adjustable lugs for securing odd values of resistance quickly and easily.

EDISON BASE TYPE

Mounted in ordinary lamp type screw sockets for easy interchangeability without the use of tools.





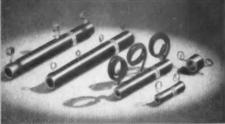
WIRE LEAD TYPE

Small vitreous enameled resistors which can be connected and supported by their own wire terminals. Maximum size approx. 20 watts.

PRECISION TYPE

Low wattageresistors of ± 1% or closer tolerance. Made in vacuum impregnated, glass sealed, or vitreous enameled type units.



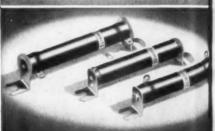


FLEXIBLE LEAD TYPE

Winding is connected to stranded bare or insulated leads. Used where it is desired to have connecting wires a part of the resistor.

BRACKET TYPE

Have metal end brackets. Live bracket type is connected by bolting brackets to panel terminals. Dead bracket type has separate lugs.





"CORRIB" TYPE

Has edge-wound, exposed corrugated ribbon winding. For low resistances where 100 watts or more must be dissipated in small space.

NON-INDUCTIVE

For radio frequency circuits where constant resistance and impedance are required. Made in vireous enameled or sealed-in-glass types.



In addition to the many types of resistors shown above, Ohmite offers resistors in more than sixty different core sizes, and a wide range of wattages and resistance values. Ohmite engineers will be pleased to help you in selecting the right resistors for your needs.

OHMITE MANUFACTURING CO.

4903 Flournoy Street

Chicago 44, Illinois



Write on Company Letterhead for Catalog and Engineering Manual No. 40.

Contains 96 pages of useful data on the selection and application of rheostats, resistors, tap switches, and other equipment.



(Continued from page 250)

man behind the guns of the Executive Committee—the keen, widely respected and very able, paid Executive Secretary-Treasurer of N.A.P.A., George Renard. As the dynamo of all national conventions of purchasing agents, the editor of the "N.A.P.A. Weekly Bulletin," the embodiment of the thinking as expressed in "From One P.A. To Another," George Renard needs no introduction to men in procurement circles.

The Prelminary Work

However, the part George Renard and his staff play in the vast preparation necessary for a meeting of the Executive Committee, is probably not known to many. Weeks and weeks prior to the date set for the Executive Committee meeting, the president, through correspondence with his district vice presidents, chairmen of standing and special committees laboriously works out the details of the agenda of business to be discussed. Mimeographed copies of the docket are prepared in the executive offices of N.A.P.A., as well as copies of all reports to be presented to the Executive Committee. Also the financial report for the previous six month period as well as the contemplated expenditures for the remainder of the year - all are prepared in sufficient number so that copies may be available for each member of the committee. Membership reports, showing the membership of each local association within N.A.P.A., as of the date of the meeting and six months ago with the gain or loss in membership by each association are all ready for each vice president for study as the committee opens its session. All of which goes to show that one reason why the vast amount of business is so efficiently dispatched by the Executive Committee within the usual two days' time is because of the preliminary planning and preparation by the N.A.P.A. president and the office of the executive secretary-treasurer of N.A.P.A.

The Big Job

The actual business of this recent Executive Meeting covered subjects listed in a typewritten docket that was three and one half pages long. After each vice president had made a report of the activities within and the recommendations from his district the committee sank its teeth into the tougher problems at hand.

Small matters, but important in their outcome, such as the applicability of a comma in the recording of a certain section of the N.A.P.A. constitution; as well as heavier problems, such as appropriating thousands of dollars to carry on activities authorized and directed from the membership level, all were given equal and careful consideration. Each member of the committee seemed intent that each decision on every problem result for the ultimate benefit and efficient operation of the N.A.P.A. as a whole,

Probably the most carefully considered item on the entire docket was the report and recommendations relating to the edu-

(Please turn to page 254)

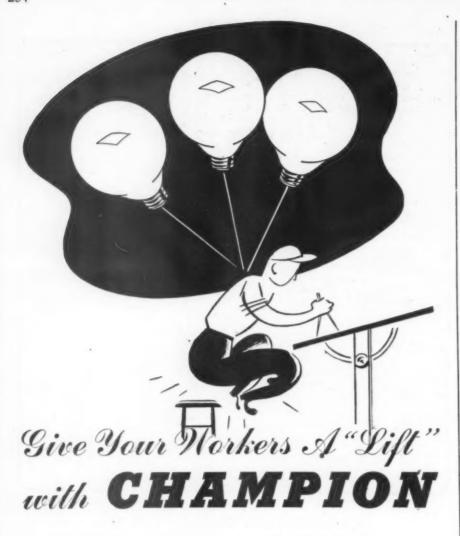


SOL-SPEEDI-DRI CUTS DOWN ON ACCIDENTS CAUSED BY SLIPS AND FALLS

Sol-Speed-Dri is the fast-working absorbent that soaks up all types of liquids and makes floors clean and safe. It works . . . while you work in safety. Sweep it up and floors are home-clean! Anyone can use it . . . requires no machinery. It's safe, sure, economical.

SUPPLIERS: —East: Safety and Maintenance Co., Inc., No. 1 Wall St., New York 5, N. Y. South, Midwest and West: Waverly Petroleum Products Co., Drexel Bidg., Phila. 6, Pa.



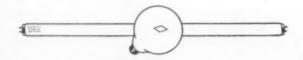


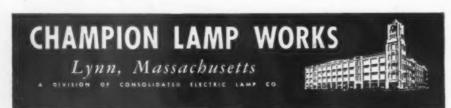
Fluorescent and Incandescent Lamps

Reduced eyestrain, conserved nervous energy, sharply diminished accident hazards, infinitely pleasanter working conditions and improved morale—all are the result of good lamps and lighting.

Champion makes the lamps, specially for industrial service, and provides a consulting service on lighting engineering without charge or obligation.

Champion industrial distributors are ready to supply your lamp needs with the utmost efficiency at lowest cost, lighting effectiveness and lamp performance considered.





(Continued from page 253) cation program of the National Associa-

tion of Purchasing Agents.

Such moves as strengthening of the educational committee by appointments of educational chairmen for each district; publicizing all phases of the material now available for improvement of the purchasing officer; discussion of possible use of movie films and listing of those worthwhile and available for this purpose—all were carefully thought out and made part of their recommendations.

The one outstanding piece of legislation worked out by this particular committee was the perfecting of all details, legal and otherwise, necessary to put into operation the pension plan for the paid employees of N.A.P.A. They are justly proud of this accomplishment.

It would be useless to comment on all the items discussed and acted upon, since a copy of the detailed minutes of any Executive Committee may be obtained upon request from the N.A.P.A. head-quarters by interested member purchasing agents.

Suffice it to say that the N.A.P.A. Executive Committee in action is a body of high ranking purchasing executives, keenly interested in the welfare of not only the 10,000 members of N.A.P.A. but the purchasing profession as such. This thought was expressed by President George Aljian, when, speaking of district conferences, he stated, "Any conference or any service that helps the members of the National Association of Purchasing Agents or purchasing in general should be encouraged."

With the experience of this meeting in mind and with the knowledge of the organizational setup of N.A.P.A. that guarantees continual selection of equally competent Executive Committees, I came away from Houston with the assurance that the affairs and interests of the National Association of Purchasing Agents would be well taken care of in the years to come.

Organize Assn. of State Purchasing Officials

(Continued from page 220)
which could devote itself

zation which could devote itself specifically to the special problems of state purchasing officials. It was also felt that such an organization would not conflict with existing organizations in the purchasing field, but rather would supplement them and that an official organization representing the states collectively would be very effective.

The suggestion was made that such an organization could devote a very large portion of its time to the improvement of day-to-day operations in the state purchasing agencies and that regional meetings of state purchasing officials, in addition to the national annual meeting, would contribute greatly to these objectives.

Articles of organization were submitted by a committee which had been ap-

(Please turn to page 256)

NOW . . . FINER

BECAUSE THEY'RE FIRE



FORGED FITTINGS ARE TOUGHER

Forged fittings stand up better under hard knocks, mechanical shock, and vibration because forging concentrates fiber-like flow line structure of metal at points of stress.

FORGED FITTINGS ARE STRONGER

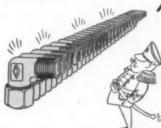
Brass forgings are over 80% stronger than brass castings that's why forged fittings will withstand higher pressures.





FORGED FITTINGS ARE CLOSER GRAINED

The extremely close-grained structure of forgings assures against blow holes or other concealed defects and against seepage of even hard-to-hold materials.



FORGED FITTINGS ARE MORE UNIFORM

Dimensions of forgings are held within extremely close limits—far closer limits than are possible in the case of castings. This makes fittings easier to install.

A Elbow and tee bodies on Compression, Flared, Hi-Duty, Flex and Inverted Flared Tube Fittings are being converted to forgings. Straight fittings made from brass rod.

See Your Industrial Supply House



TURE FITTINGS

for connecting copper, steel, aluminum and other metal tubing.

DRYSEAL PIPE THREADS

Full length SAE Dryseal Pipe Threads are being incorporated on pipe thread ends. These threads make tight joints without pipe dope; are longer on sizes 1/4" and over.



IMPERIAL leads again with new, finer tube fittings for connecting copper, steel, aluminum and other thin-wall metal tubing. These new fittings have forged instead of cast bodies on tees and elbows and SAE Dryseal Pipe Threads on all pipe connections.

The superiority of forged brass fittings has long been recognized. Now, for the first time these better fittings are made available for general industrial applications. Today, more than ever before, the Imperial Diamond "I" is your assurance of top quality. Write for Bulletin No. 349 on Forged Fittings.

THE IMPERIAL BRASS MANUFACTURING COMPANY Chicago 7, Illinois 512 South Racine Ave.

Pioneers in Tube Fittings and Tube Working Tools



EFFICIENT . . .

No time lost for heading up wheels; operator at all times can use both hands in handling the work being finished.

FLEXIBLE.

Operations can be entirely automatic, that is, with continuous spraying or timer controlled intermittent spraying; or spraying can be controlled by foot treadle.

MAINTENANCE..

All parts used are of well-known standard manufacture and designed to give long service. The entire apparatus, when using Lea Emulsion Spray Composition, can be cleaned with hot water without dismantling.



CLEAN.

Excess amounts of spray never present; work is clean.

ECONOMICAL.

Spray composition requirements 50% of bar composition or even less; no wastagein butt end or nubbins. Special valve design permits close control of composition in the spray. It saves on buffs, toe, because of the uniform coating.

The Lea Emulsion Spray Method of Polishing and Buffing is so widely adaptable that we suggest you look into its usefulness in your shop. Tell us what your work schedule is and we'll be glad to recommend the proper size Lea Spray Machine.



THE LEA MANUFACTURING CO.

16 CHERRY AVENUE

WATERBURY 86, CONN.

Burring, Buffing and Polishing ... Manufacturers and Specialists in the Development of Production Mathods and Compositions. (Continued from page 254)

dition to President George J. Cronin, Massachusetts, the governing body consists of Vice President Blaine Yoder, Nebraska; and an Executive Committee consisting of the president and vice president, and Richard S. Persons, New York; Eugene A. Gump, Michigan; Glenn Rumbaugh, Louisiana, and J. Henry McGean, Utah.

The Council of State Governments was asked to act as the secretariat of the new association. The Council is a governmental agency established by the states for service to the states and supported by appropriations from the several states. The Council is also the secretariat for the Governors' Conference, the American Legislators Association, the National Association of Attorneys General, the National Association of Secretaries of State, and the National Association of State Budget officers.

The central office of the Council of State Governments is at 1313 East 60th Street, Chicago. There is a branch office in Washington, and regional offices are maintained in New York and San Francisco.

Secretariat Services

The Council of State Governments, as Secretariat for the Association, would:

(1) Assist in arranging national and regional meetings of state purchasing officials and provide necessary services for operating such meetings.

(2) Act as a clearing house and general source of information for all state purchasing officials.

(3) Provide information relative to the organization and operation of purchasing departments in the several states and legislation, both state and national, affecting such departments.

The new association conducted a round table in regard to the matter of war surplus, the laws that apply to the distribution of surplus property, and considerable time was devoted to discussion of surplus property laws and administrative procedures of the W.A.A. Joseph R. Downey, Head of the Claimants' Branch of the War Assets Administration, attended the session.

Department Organization

The group discussed at length the organization and operation of state purchasing agencies, and Messrs. Paul Worcester of Pennsylvania, Eugene Gump of Michigan, and Franklyn Adams of Rhode Island outlined, in detail, laws governing purchasing and methods and procedures of administration in their States.

It was the concensus that much could be done by the association through acquainting all state purchasing officials with purchasing laws and administrative procedures in all of the states, and the Council of State Governments was directed to assemble such a digest and make it available to all state purchasing officials.

(Please turn to page 258)

You Can SEE That It's ONLY the SDE of a V-Belt

That Grips the Pulley and Gets the Wear!



a GATES Pater

Look at a V-Belt in its sheave and you see at once that the sides of the belt do all the gripping on the pulley and get all the wear against the sheave-groove wall.

Notice, too—it's the sides that pick up all the power delivered by the driver pulley. The sides transmit that power to the belt as a whole. And then, once more, it's the sides—and the sides alone—that grip the driven pulley and deliver the power to it.

That is why you have always noticed that the sidewall of the ordinary V-Belt is the part that wears out first.

- and Here Is How the CONCAVE SIDE *REDUCES Sidewall WEAR

and Lengthens Belt Life!

Clearly, since the sidewall is the part that wears out first, anything that prolongs the life of the sidewall will lengthen the life of the belt.

The simple diagrams on the right show exactly why the ordinary, straight-sided V-Belt gets excessive wear along the *middle* of the sides. They show also why the Patented Concave Side greatly reduces sidewall wear in Gates Vulco Ropes. That is the simple reason why your Gates Vulco Ropes are giving you so much longer service than any straight-sided V-Belts can possibly give.

*More Important NOW That STRONGER Tension Members are Used

Now that Gates Specialized Research has resulted in V-Belts having much stronger tension members—tension members of Rayon Cords and Flexible Steel Cables, among others—the sidewall of the belt is often called upon to transmit to the pulley much heavier loads. Naturally, with heavier loading on the sidewall the life-prolonging Concave Side is more important today than ever before!

THE GATES RUBBER COMPANY Denver, U. S. A. "World's Largest Maker of V-Belts"





How Straight Sided V-Belt Bulges When Bending Around Its Pulley



You can actually feel the bulging of a straight-sided V-Belt by holding the sides between your finger and thumb and then bending the belt. Naturally, this bulging produces excessive wear along the middle of the sidewall as indicated by arrows.

Gates V-Belt with Patented Concave Sidewall



Showing How Concave Side of Gates V-Belt Straightens to Make Perfect Fit in Sheave Groove When Belt Is Bending Over Pulley



No Bulging against the sides of the sheave groove means that sidewall wear is evenly distributed over the full width of the sidewall—and that means much longer life for the belt!

FATES VULCOE DRIVES

Fates_

Engineering Offices IN ALL INDUSTRIAL CENTERS of the U.S. and Jobber Stocks IN ALL INDUSTRIAL CENTERS 71 Foreign Countries

THE MARE OF



Your Special Size and Shape Brick or Concrete Block can now be "Tailor-Made" at a moment's notice!



The new Clipper Multiple Cutting Principle makes possible faster cutting of every masonry material regardless of hardness.

Here are a few typical examples of the speed and accuracy with which concrete products and fire brick can be cut.



This concrete block, converted into a special size, was cut completely in two in 19 seconds.

One of the many intricate cuts performed on first quality clay brick for heat treating furnaces -made in 8 sec.





Rotary Kiln Blocks, cut to size for "key" bricks in rotary kilns, require only10sec.forcompletion of cut-

Basic refractories for steel furnaces or cement kilns must be accurately installed. This magnesite brick was cut in 12 seconds!





CLIPPER MFG. COMPANY 2804 Warwick, Kansas City 8, Mo.

MILWAUKEE ASSOCIATION JOINS SCRAP IRON DRIVE

President Edward L. Block of the Milwaukee Association of Purchasing Agents, (P. A. Unit Drop Forge Co., Milwaukee 1, Wis.) recently sent the following letter to association members, asking their cooperation in the matter of increasing the flow of scrap iron into

"At the present time many of our member companies are in a serious position due to the shortage of merchant pig iron. The situation is so serious that some foundries are having to run on a reduced schedule and some are having to close because of this shortage. The situation is caused by several things:

1. 40% of the pig iron production is allocated by the Government to the

Housing Program.

Previous to the War, in the manufacture of soil pipe, approximately 65% pig was used. We understand that soil pipe manufacturers are now using 85% pig iron in their mix because of the high price of scrap iron.

It has been proved that metallurgically soil pipe can be produced from 100% scrap. However, soil pipe manufacturers will not use scrap due to the fact that pig is

cheaper.

The steel mills in making steel are using molten pig iron instead of buying scrap because of the scrap shortage and the fact that pig iron is cheaper than scrap.

Scrap inventories in dealers' hands increased in December which indicates that dealers are holding scrap

for higher prices.

'The conditions surrounding the situation mean serious effect on all industries using grey iron and malleable castings. Re-allocation of pig iron will help to only a minor extent. What we really need is more scrap. A large flow of scrap into the market will tend to do several things:

1. Make scrap available for use in place of so much pig iron.

Increase in scrap flowing into markets will tend to reduce price. As soon as this occurs, large inventories being held for speculation will be moved.

"We are asking all of our members to do all in their power to stimulate interest in their industry and community toward getting scrap into circulation. If there is any scrap in your plant that can be put into circulation, please do so. It is only by concerted effort on the part of all that this problem can be solved.'

NATIONAL PRESIDENT ALJIAN VISITS UTAH ASSOCIATION

National Association president George W. Aljian addressed the Purchasing Agents Association of Utah at its February 24th meeting in the Hotel Utah, Salt Lake City, Utah. Numerous company executives were also present. Herbert

(Please turn to page 260)



If it's an Insulation Problem
this is the name to know.

Continental Diamond

[-]

Engineered Non-Metallics

• Your engineers are continually on the lookout for materials that will improve your product's performance . . . that will provide a greater margin of safety in the operation of electrical equipment . . . that will better resist high temperature and moisture conditions.

• When laminated plastics, vulcanized fibre or mica products are specified, be ready with the latest, finger-tip information that will enable you to select the right material to do the job.

• There's such information available in the most recent C-D Bulletin, GF-46. For instance, you'll find complete data on electrical and physical properties of 32 different grades of C-D Dilecto as well as full information on various grades of Diamond Vulcanized Fibre and other C-D materials such as Dilectene, Vulcoid, Celoron and Micabond. Send for this bulletin without delay.

C-D NON-METALLIC PRODUCTS

DILECTO-Thermosetting Laminated Plastics.

CELORON-A Molded Phenolic Plastic.

DILECTENE—A Pure Resin Plastic Especially Suited to U-H-F Insulation.

HAVEG—Plastic Chemical Equipment, Pipe, Valves and Fittings.

DIAMOND Vulcanized FIBRE.

VULCOID—Resin Impregnated Vulcanized Fibre.

MICABOND—Built-up Mica Electrical Insulation

STANDARD & SPECIAL FORMS

Available in Standard Sheets, Rods and Tubes; and Parts Fabricated, Formed or Molded to Specifications.

DESCRIPTIVE LITERATURE

Bulletin GF gives Comprehensive Data on all C-D Products. Catalogs are also available.

DP-2-47

Grade XXP nat-

ural paper base

Dilecto was used

for this electrical in-

In addition to clean, easy fabrication, C-D

Dilecto provides excel-

lent mechanical and

dielectric strength.

sulating strip.

BRANCH OFFICES: NEW YORK 17 • CLEVELAND 14 • CHICAGO 11 • SPARTANBURG, S. C. • SALES OFFICES IN PRINCIPAL CITIES WEST COAST REPRESENTATIVES: MARWOOD LTD., SAN FRANCISCO 3 • IN CANADA: DIAMOND STATE FIBRE CO., OF CANADA, LTD., TORONTO 8

Gontinental = Diamond FIBRE COMPANY

Established 1895. Manufacturers of Laminated Plastics since 1911—NEWARK 41 • DELAWARE



"Oh, no, Johnson. I'll admit the General Electric Water Cooler is the most valuable thing in the office, but we'll have to leave it out over night."

General Electric Water Coolers ... for city or bottle water...cost only about 2¢ a day to operate in

Electric dealer will give you prices and delivery date. General Electric Co., Air Conditioning Dept., the average office. Your General Section 7294, Bloomfield, N.J.

GENERAL & ELECTRIC

Water Coolers

AMERICA'S FIRST WIRE FENCE .



 Conditions existing at your property may make it advisable for your Page Chain Link Fence to be of rust-immune Page Stainless Steel. Or perhaps your need or preference will favor corrosion-resisting Page Aluminum . . . or Page Copper-Bearing Steel, heavily galvanized . . . or Page-Armco Ingot Iron, purest of commercial ferrous metals. Whatever your problem, the nearest Page Fence Association member will confer with you on fence styles and materials, and will submit cost estimates without obligation. He represents a long-experienced local fence erecting firm which knows regional conditions. Write for illustrated information and we will send name and address of Association member in your vicinity.

For name of nearest member firm, write to PAGE FENCE ASSOCIATION in Monessen, Pa., Atlanta, Bridgeport, Chicago, Denver, Detroit, Los Angolos, Philadolphia, Pittsburgh, New York or San Francisco

(Continued from page 258)

Weindell, president of the association presided, and a welcome was extended to Mr. Aljian by Mayor Earl J. Glade

Mr. Aljian declared it is "imperative that we have both downward tends in commodity prices and upward trends in labor productivity." Predicting a halt to rising commodity prices, he said "final heights in most lines will be reached within a matter of months and trends thereafter should be downward even though some few industrial prices may continue upward. He attributed the recent inflation to inventory replacement needs of the country, adding that, "pipe lines are now rapidly nearing the fullmark and once they begin to flow-with today's production backing them up, the volume they deliver will be immense.

Talking about the sugar industry, he declared that 90% of the industry is in favor of continuing sugar controls through 1947, and that in view of the 1,000,000 ton sugar shortage in the United States during 1947, lifting controls would be almost certain to result in higher sugar prices for both housewives and industrial users, accompanied by critical shortages in many areas remote from sugar refineries.

COMMODITY FORUM & DISCUSSION **BUFFALO ASSOCIATION**

Harry D. Grow served as chairman of the Commodity Forum and Discussion which highlighted the March 12 meeting of the Purchasing Agents Association of Buffalo at the Hotel Statler. Topics discussed included Ferrous and Non Ferrous Metals, Petroleum Products and Textiles. Joseph J. Mayer, Lumen Bearing Co., Thomas Giallella, Samuel Greenfield Co., Joseph K. Silvernail, Socony-Vacuum Oil Co., and John Murphy, Washburn Crosby Co., acted as discussion leaders. It was also announced that the association's annual Salesmen's meeting would be held on April 9th. Ten new applications for membership were voted on and approved.

"BUYERS IN A BUYERS MARKET" ST. LOUIS ASSOCIATION

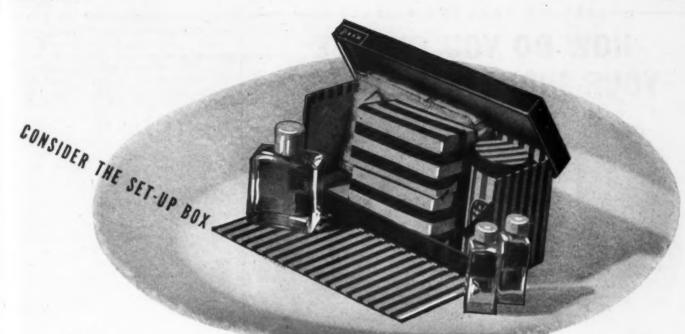
"How Buyers Behave in a Buyers Market" was the subject of an address by Stuart F. Heinritz, Editor of PURCHAS-ING, at the March 18th meeting of the Purchasing Agents Association of St. Louis. Del Baker conducted the com-modity discussion.

MILWAUKEE ASSOCIATION **RECENT ACTIVITIES**

The March 11 meeting of the Purchasing Agents Association of Milwaukee was held at the Allen-Bradley Co. A short commodity discussion preceded the evening's activities. During the month four meetings of the Marquette Purchasing class were held. On March 6 Zeno Le-Tellier, vice president and chief chemist, Pate Oil Co., spoke on "The Purchasing of Lubricants." On March 13th A. M. Williams, representative, General Ameri-

(Please turn to page 262)

PRODUCT OF PAGE STEEL & WIRE DIVISION OF AMERICAN CHAIN & CABLE . BRIDGEPORT, CONN.



More for Your Money

Is your product competing for shelf display space? If it is, it will get a better acceptance with a set-up box. Chief among the versatile assets of this superior package is its increased display space. Effective display means instant product identification and additional business. How strongly you compete at point of sale helps to determine your sales. Packaging your product in a set-up box will give you sales-producing advertising as well as safer shipping and easier packing.

Consult your nearest set-up box manufacturer, or write Dept. 110, National Paper Box Manufacturers Association, Liberty Trust Building, Philadelphia 7, Pennsylvania, for the latest developments in the packaging field.



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AND COOPERATING SUPPLIERS

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FOR INFORMATION OR SERVICE . CONSULT YOUR NEAREST SET-UP BOX MANUFACTURER

HOW DO YOU CHOOSE YOUR INDUSTRIAL TIRES?



... for every job!





UNITED STATES RUBBER COMPANY

1230 Avenue of the Americas . Rockefeller Center . New York 20, N. Y.

(Continued from page 260)

can Transportation Corp., Chicago, presented a sound film, lecture, and exhibit on Plastics. The March 20th session was devoted to various purchasing problems; and on March 27th a sound film, "The Making & Shaping of Steel" was presented by the United States Steel Corp.

MODERNIZING MATERIALS HANDLING NEW YORK FORUM

A moving picture, "Pay-Loads Pay Off," sponsored by the Automatic Transportation Company of Chicago, was shown at Forum Meeting of the Purchasing Agents Association of New York, held at the Builders Exchange Club on March 18th. Showing of the picture was accompanied by two talks on material handling. Theme of the forum was "Modernizing Materials Handling-A Responsibility of the P. A." The speakers were Stanley Gemar of Raymond L. Smith Associates, and Walter Sheldon of the Union Bag & Paper Co., New York.

Feature speaker at the dinner meeting which followed was Edward Scheidt, Special Agent in Charge Federal Bureau of Investigation, New York City. His subject was "Commercial Frauds."

TERMINOLOGY AND SPECIFICATION IN BUYING-SEATTLE

An education forum on "Terminology and Specification in Buying," presided over by Harold D. Mitchell, chairman of the association's educational committee, preceded the March 13 dinner meeting of the Purchasing Agents Association, at the Washington Athletic Club, Seattle. Speakers and topics at the forum were:

Paint, Duncan Beckley, W. P. Fuller

Steel, Ralph Winship, Columbia Steel

Lumber, H. F. Jefferson, Nettleton Lumber Company.

The dinner program featured a film showing the construction progress on Coulee Dam, and a talk on "The Eco-nomic Benefits of Reclamation Projects," by Major S. E. Hutton, director of information, U. S. Dept. of Interior, Bureau of Reclamation, Coulee Dam.

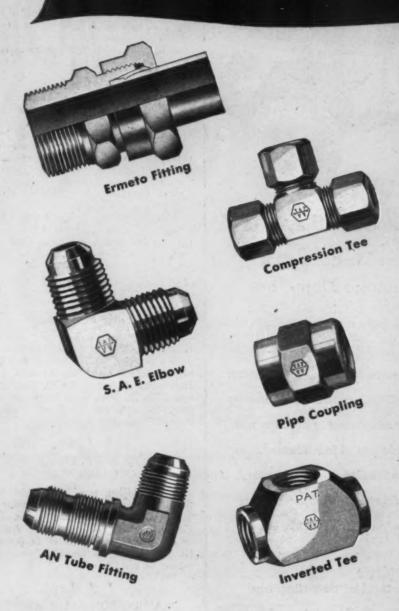
PURCHASING FORUM MONTREAL ASSOCIATION

The Research Clinic of the Purchasing Agents Association of Montreal was devoted to a "Purchasing Forum" under the joint chairmanship of Messrs. Fred Samis and John Crawford, at the March 18th meeting of the association held in the Mount Royal Hotel, Montreal. An expanded program of activity provides that the Forum will continue until the end of May, meeting on the second and fourth Tuesdays of the month.

Guest speaker at the dinner meeting was R. Keith Jopson, O.B.E., His Majesty's Trade Commissioner at Montreal.

(Please turn to page 264)

3 SIMPLE RULES FOR A PERFECT FIT



HERE ARE three simple rules that will help you to quickly solve your "fittings" problems.

1. Decide what style fitting you need. Is it an inverted, flared tube type? Is it an SAE flared tube type? Is it a compression type? Is it a pipe fitting? Is it an AN tube fitting? Is it an Ermeto* fitting?

Weatherhead is the world's largest producer of tube fittings and offers you a complete line for every purpose. These fittings are made in brass, steel, stainless steel, and aluminum from bar stock and forging.

- 2. Be sure it's made of the best possible materials. Typical Weatherhead fittings are machined from extruded brass bar stock to eliminate any danger of sand holes or other casting flaws. All have flat sides, making them easy to tighten or loosen with an open wrench. Acid baths and solution washes at the end of the high precision production lines delivers them bright and clean.
- 3. Buy it from a reliable manufacturer. The Weatherhead Company is the leading parts producer in more than a dozen industrial fields and manufactures thousands of different products which are described in numerous catalogs. Write us today and let us know what your needs are. We'll send you a catalog, promptly, which will cover all your tube fittings, flexible hose, hose assemblies or other needs. Trade Mark Reg. U. S. Fat. Off.

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Weatherhead Products Include:

Power Brake Units • Jet Fuel Control Valves • Liquefied Petroleum Gas Regulators • Relief Valves • Flexible Hose Assemblies • Tube Fittings • Refrigeration Valves • Dehydrators



OSE of a Bloodhound SPEED of a Tiger

That's the New Underwriters' **Approved Smoke Detector**

A wisp of smoke from a faintly smoldering fire is all it

takes to operate a C-O-Two Smoke Detector. The Detector sniffs air continually from all protected areas. If smoke is present, an alarm sounds and, like a tiger, a C-O-Two fire extinguishing system springs into action; the fire is smothered in seconds with a cloud of cold, dry, inert carbon dioxide gas. A few minutes later the area is ready for use again; no after-fire clean-up is necessary. Carbon dioxide won't harm finishes, fabrics or equipment. It is a non-conductor and can be used safely on live electric equipment. Snuffs out flammable liquid fires.

Investigate this new and modern method of detecting and extinguishing fire at its start. C-O-Two Smoke Detectors are not dependent on heat for operation. They are especially designed for fast detection of slow smoldering fires in record vaults and storage spaces.





C-O-Two Fire Equipment Co

Sales and Service in the Principal Cities of United States and Canada AFFILIATED WITH PYRENE MANUFACTURING COMPANY

(Continued from page 262) who spoke on "Britain's Economic Prob-

lem."

Members of the Sir George Williams College purchasing class, conducted by John Crawford, were association guests at this meeting. Prizes and diplomas were awarded the successful candidates.

SUGAR BOWL FILM SHOWN NEW ORLEANS ASSOCIATION

A technicolor film of the 1947 Sugar Bowl football game was shown at the March 10 meeting of the Purchasing Agents Association of New Orleans at the Jung Hotel.

RECEIVES GOLD AWARD FOR BEST BUSINESS LETTER

Joseph H. Stoneking, advertising manager of Uarco Incorporated, Chicago, manufacturers of continuous business forms and systems, was the recipient of the 11th Annual Dartnell Gold Award for the best business letter written during 1946, at meeting of the Chicago Industrial Advertisers Association. He won a similar citation last year and is one of the few recipients of more than one award in the competition sponsored by the Dartnell Corporation of Chicago.

DISCUSS RUBBER AT TWIN CITY MEETING

Richard N. North, General Laboratories, U. S. Rubber Co., Passaic, N. J., gave a talk on "Rubber" at the March 12 meeting of the Twin City Association of Purchasing Agents at the St. Paul Athletic Club, St. Paul, Minn. A moving picture, "Winning the Battle of Synthetic Rubber," was also shown.

"HOW BIG IS OUR JOB" TRI-CITY ASSOCIATION

George Aljian, president of the National Association, was guest speaker at the February 19th meeting of the Tri-City Association of Purchasing Agents at the Blackhawk Hotel in Davenport, Ill. "How Big Is Our Job" was the subject of his address.

WASHINGTON ASSOCIATION HOLDS ANNUAL MEETING IN TACOMA

Industrial, commercial and governmental purchasing agents from throughout Western Washington met in Tacoma, February 13, for meeting of the Purchasing Agents association of Washington. The Atlas Foundry and Machine Co. was host at a luncheon following which an inspection tour of the company's plant, including the pattern shop, steel, iron and brass foundries and machine shop, was made.

The dinner-meeting was held at the (Please turn to page 268)

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ASK ALCOA .. WE MAKE ALL THREE!

Ask us which type of Aluminum Casting is best for your product . . . and you get a frank, technically-sound answer. We make all three types, have no special bias in favor of any one of the three. Our job is to see that you use the casting that's best for your product . . . and for your production cost figures.

Each type of Alcoa Aluminum Casting

—sand, permanent mold, and die—has its points. Your product may require a combination of two types, or even all three.

Our engineers and our 59 years of aluminum know-how are at your service to help you get the most from Alcoa Aluminum Castings. Aluminum Company of America, 1931 Gulf Bldg., Pittsburgh 19, Penna. Sales offices in leading cities.

MORE people want MORE aluminum for MORE uses than ever

ALCOA HIRST IN ALUMINUM



IN EVERY COMMERCIAL FORM

SUN "JOB PROVED" PRODUCTS CUT COSTS, SPEED PRODUCTION, IMPROVE QUALITY

Proof of the value of any industrial product lies in the experience that practical men have had with it. Sun products have been "Job Proved" in the lubrication of almost every type of mining, manufacturing, power and transportation equipment . . . in refrigeration and air-conditioning . . . in metal cutting, tempering and quenching . . . in the processing of textile fibers, leather, natural and synthetic rubbers . . . in the impregnation of electrical, electronic, and packaging materials of various kinds.

To help you find solutions to problems in any of these fields, Sun Oil Company offers a wide selection of "Job Proved" petroleum products, plus the experience of Sun Engineers. Their know-how and detailed product information are yours for the asking, without obligation. Telephone your local Sun office, or write Dept. PU-4...

SUN OIL COMPANY Philadelphia 3, Pa.

"JOB PROVED" PETROLEUM PRODUCTS FOR INDUSTRY

SUN INDUSTRIAL OILS

SOLNUS OILS — Well-refined straight mineral oils. Stand up under hard use for long periods of time. Recommended for use in the machine tool industry, in air compressors, certain types of Diesels, etc.

SUNVIS OILS—Are in the same category as Solnus Oils with the difference that, in addition, they meet practically all paraffinic and high V.I. oil specifications.

OCNUS OILS—Low carbon-content oils, containing an additive which minimizes oxidation and gives detergency. Ideal lubricants for internal combustion engines subjected to continuous heavy loads under the most adverse operating conditions.

DYNAVIS OILS—Low pour point inhibited oils which help prevent formation of harmful corrosive and sludge-forming acids. Well-suited for engines fitted with alloy bearings and operated at high temperatures.

SUNTAC OILS — 100% petroleum products which have been treated to increase their adhesiveness. Recommended for general lubrication in all industries where sudden shocks and reversal of loads take place. These oils cling to the parts to be lubricated.

CIRCO OILS—Used for general lubrication of industrial machinery when straight mineral oils are required,

SUNISO REFRIGERATION OILS—Have extremely low pour points and long life stability characteristics. Initially neutral and resistant to formation of detrimental acids under service conditions. The most autstanding oils in the refrigerating and air-conditioning fields.

STEAM CYLINDER OILS—High flash and fire point lubricants for either saturated or super-heated steam conditions and for worm gear speed reduction units:

SUN CAR JOURNAL OILS—Dark oils meeting A.A.R. Specifications. For use on railroad cars and waste-packed bearings of railroad equipment.

SUN DELAWARE OILS — Dark oils for general lubrication on older type industrial machinery.

SUNOCO WAY LUBRICANT—Has good metal-wetting and adhesive properties, ample viscosity and E.P. qualities. For use on tableways, as it eliminates chatter and scoring . . . resists corrosion.

SUN MARINE ENGINE OILS—Compounded with special emulsifying agents in order to provide adhesion to and lubrication of working parts in the presence of water. For the lubrication of bearings, eccentries, cross-heads and various other parts of steam engines.

ROCK DRILL OIL—Heavy-duty adhesive type oil. For use in jack-hammers, stopers and drifters on heavy-duty mining operations.

SUNVIS 900 SERIES TURBINE OILS—High V.I., predominantly paraffinic oils, of uniform 0°F. pour points, containing additives to give high oxidation stability and corrosion resistance under practical operating conditions. Modern oils for turbine and hydraulic systems.

SUN INDUSTRIAL GREASES

SUN CUP GREASES—Water resistant. For grease cup and grease gun application when the service is not severe.

SUN GUN GREASES — Smooth greases made with medium viscosity oil. Stable under pressure in power guns or booster guns.

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ADHESIVE PRESSURE GREASES—Won't drip or splash and are excellent lubricants for open gear applications.

SUN DARK PRESSURE-SYSTEM GREASES— For power-driven central grease lubricating systems in heavy industries. Can also be used as a "medium cup grease."

SUN MINE CAR GREASES—Available in several grades. Suitable for both anti-friction bearings and plain bearing cavity-type wheels.

SUN ROLLER BEARING GREASES—For use on electric motors and generators and other high-temperature machinery equipped with ball or roller bearings.

SUN GEAR COMPOUNDS—Black adhesive open gear compounds and wire cable greases. Recommended for open gears on metalworking power presses, mining machinery, old reduction mills, crushers, pump gears, etc.

SUN MINING MACHINE LUBRICANT—Semifluid. For use where a light but adhesive type grease is required. Free from separation or decomposition.

SUNOCO TRACTOR ROLLER COMPOUND— For miscellaneous parts of caterpillar or crawler-type tracks. Provides good lubrication with exceptional sealing qualities.

SUN METALWORKING OILS

SUNICUT — Straight or non-emulsifiable transparent cutting oils. Recommended for automatic screw machines and for heavy-duty machining operations.

SUN INDUSTRIAL



sunoco EMULSIFYING CUTTING OIL—A self-emulsifying oil which produces a stable white emulsion when mixed with water. Sunoco is an efficient and economical cooling and lubricating medium for turning, milling, drilling, and other metalworking operations on both ferrous and non-ferrous metals. It is also an excellent grinding coolant.

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SUN QUENCHING OILS—Specially refined oils designed to develop maximum physical properties in a wide variety of steels.

SUN TEMPERING OILS—Specially refined oils for tempering steel up to 550°F. Due to their low carbon content and stability under heat, these oils have an unusually long service life.

SUN ROLLING OILS—Straight and emulsifying oils which will permit maximum production in rolling steel, aluminum and brass.

SUN ANTI-RUST COMPOUNDS — Petroleum base oils with chemical additives designed to prevent the rusting and corrosion of steel.

SUN PROCESSING OILS

SUNOTEX TEXTILE OIL5—Designed to impart certain additional properties to various forms of fibers during their processing from the fiber state into a manufactured product. All Sunotex textile oils are emulsifiable in water.

SUN COTTON CONDITIONING OILS—Pale mineral oils which condition the cotton. They prevent waste by cutting down excessive amounts of "fly" or fine dir-borne particles as time.

UN ASBESTOS FIBER CONDITIONING OIL

—Used for spraying on the asbestos during rocessing. Fibers are not so readily damaged or broken down into harmful dust when this roduct is used.

SUN CORDAGE OILS — Are adaptable in various formulae used by cordage manufacturers. They are selected products which are highly compatible with additives.

CIRCOSOL—2XH (Rubber Processing) — An elasticator and processing aid for GR-S particularly.

CIRCO LIGHT PROCESS OIL (Rubber Processing) —A processing aid and excellent softener for natural rubber, natural rubber reclaims, and neoprene synthetic rubber particularly. Used for GR-S to some extent.

SUNDEX 53 (Rubber Processing)—An inexpensive product suitable for processing GR-S and blends of GR-S and natural rubber. An established outstanding processing aid for footwear rubber stocks.

CIRCOMAR-5AA (Rubber Processing) —A black colored product used in reclaiming natural rubber scrap. Used also as substitute for asphalt fluxes in processing natural and GR-S rubber. Free-flowing at room temperature.

SUN LEATHER OILS—Mineral base leather oils. Used for obtaining the desired tensile strength, proper temper and a controlled moisture content. They maintain a light even color . . . mix well . . . distribute evenly.

SUN MISCELLANEOUS INDUSTRIAL PRODUCTS

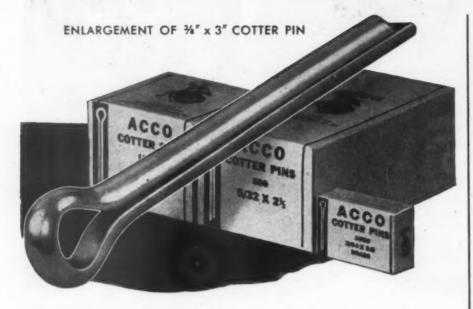
SUN SPIRITS — For the thinning of paints, varnishes, and enamels. Also for metal cleaning. This product is a pure water-white petroleum solvent and is free of corrosive sulphur.

SUN WAXES — Used in packaging, sealing, coating, waterproofing and for numerous manufacturing and chemical processes.



PRODUCTS

UCTS =SUNOCO>



ACCO COTTER PINS ARE MADE TO AMERICAN CHAIN STANDARDS OF QUALITY

There's more to a cotter pin than simple dimensions. ACCO cotter pins are precision-made from accurately drawn wire. They are easy to insert. They fit the hole size for which they are made. Prongs spread easily and hold tight. And they are packed in substantial boxes, clearly labeled.

YORK, PA.-American Chain makes two types of cotter pins in a full range of sizes. In addition to the Acco (regular type, shown above) American offers the CAMPBELL HAMMERLOCK, which locks positively and permanently by simply striking the head with a hammer-a distinct advantage on a production line.

Look to American for sound quality, whether it is cotter pins-electric or fire-welded chain-any type of weldless chain made of formed wire or stampings-chain fittings, attachments and assemblies-repair links-hooks.

Get in touch with your American Chain Distributor.

York, Pa., Chicago, Denver, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, Portland, San Francisco, Bridgeport, Conn.

AMERICAN CHAIN DIVISION AMERICAN CHAIN & CABLE

In Business for Your Safety

(Continued from page 264)

Winthrop Hotel, with R. Guy Frederick, president of the state association in charge. Reno Odlin, president of the Puget Sound Second National Bank, spoke on the "Current Business Outlook". He stated that he foresees 1947 as a year of equilibrium, with less bungling, fewer strikes, more and better goods, fewer government controls, and a gradual change-over from a seller's to a buyer's market. A movie entitled "Miracle in Wood" was shown through the courtesy of the Douglas Fir Plywood Association.

1 1 1 1200 AT NEW YORK **PURCHASING-SALES DINNER**

Approximately 1200 purchasing agents and salesmen attended the annual Purchasing-Sales dinner sponsored by the Purchasing Agents Association of New York in the grand ball room of the Hotel Commodore, New York City, February 26th. The speakers were A. J. Browning, vice president in charge of Purchasing, Ford Motor Company, whose subject was "Tomorrow's Purchasing Agent", and George A. Renard, executive secretary, N. A. P. A., who gave a short, pithy talk "From one P. A. to Another". Mr. Browning's talk appears elsewhere in this issue of PURCHASing Magazine.

Guests at the speakers' table included Stuart Heinritz, editor, PURCHASING; C. O. Richards, national director, and T. H. Garrison, president of the Purchasing Agents Association of Lehigh Valley; H. I. Patten, executive secretary, and H. F. Jones, president of the Philadelphia association; James A. Cooney, national vice-president, 8th District, (Rochester association); Garnet T. Dickson, national vice president, 5th District, (Toronto association); Charles M. Healey, Jr., national vice president, 9th District, (Western Massachusetts); J. S. Rutherford, president, Buffalo association; M. J. Birzer, Jr., national director, Canton & Eastern Ohio Association; Harold G. Adams, past president of the Philadelphia association, and W. A. Charity, national director, Rochester association.

The dinner was arranged by the program committee, Harold Butterfield, chairman, in cooperation with the dinner committee, E. G. Jaehne, chairman.

1 1 1 CONTRACT LAW IN PURCHASING TOPIC AT 1947 INSTITUTE OF NEW YORK ASSOCIATION

The Purchasing Agents Association of New York has sponsored a Purchasing Institute, comprising six sessions devoted to the various aspects of Contract Law in Purchasing. The Institute, held at the Midston House, in New York, be-tween March 3 and April 7, 1947, was designed particularly for senior purchasing executives whose experience and background qualified them to contribute constructively to the discussions. H. Plitt

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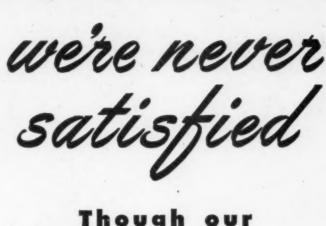
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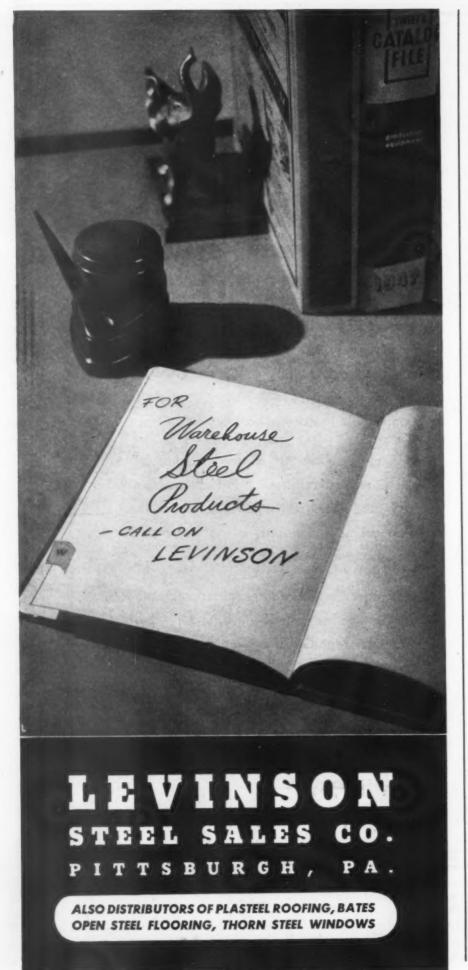
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BATTERIES



(Continued from page 268)

Sadtler, Jr., a member of the firm of Arthur, Dry & Dole, conducted the course, and Harold W. Macintosh, Purchasing Agent, L. O. Koven & Bros., Inc., served as general chairman.

The first session, on March 3, was devoted to General Types of Contract and dealt with material purchases, service purchases, equipment for installation and construction of contracts. The discussion was lead by Stanley W. MacKenzie, Director of Purchases, United States Rubber Co. The second session, on March 10, covered Price Protection. Richard M. Morrison, General Purchasing Agent, The Texas Co., led the discussion which covered escalator clauses and application of the Patman Act. On March 17th Provision for Taxes was discussed, including insurance and patent protection. Norman O. Aeby, Director of Purchases, Johns-Manville Corp., acted as discussion leader.

Curran Ridout, Assistant Purchasing Agent, International Standard Electric Corp., led the discussion on Default at the fourth session on March 24th, which included delay in delivery and measure of damages. On March 31st Cancellation of Orders and Contracts was discussed by Harold K. LaRowe, Division Purchasing Agent, American Cynamid Co., and Subsidiaries. This included inspection and rejection and passage of title as affected by delivery terms. Meeting on April 6 will be a general summary, reviewing the high points of the five previous sessions with Harold W. Macintosh, presiding.

LEE R. FORKER ADDRESSSES PHILADELPHIA ASSOCIATION

11

Lee R. Forker, purchasing agent for the Quaker State Oil Refining Corp., and a past vice-president of the National Association spoke before the Purchasing Agents Association of Philadelphia at the February 18th meeting at the Bellevue-Stratford Hotel in Philadelphia.

ROUND TABLE DISCUSSION N. W. PENNSYLVANIA ASSN.

The March 6th meeting of the Purchasing Agents Association of Northwestern Pennsylvania was held at the Blue and White Restaurant in Warren, Pa. Instead of having a guest speaker address the group the evening was devoted to a round-table discussion of diverse purchasing problems and procedures.

"INFORMATION PLEASE" PITTSBURGH ASSOCIATION

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The Purchasing Agents Association of Pittsburgh devoted its February 18th meeting to a discussion of current purchasing problems by a panel consisting of D. G. Clark, Gulf Oil Corp., M. E. Carlisle, Pittsburgh Plate Glass Co., L.

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H. Bittner, Allegheny Ludlum Steel Corp., and H. T. Michel, Westinghouse Electric Corp. I. E. Walton, Heppenstall Co., acted as moderator. The meeting was appropriately called "Information Please" in that it was largely devoted to the answering of a series of questions and problems posed in advance by the membership, the balance of the time being used in the discussion of new questions as they were posed from the floor.

1 1 1 ROCHESTER ASSOCIATION SEES OPERATIONS CROSSROADS FILMS

The official Army and Navy pictures of the Bikini Bomb Test were shown at the February 19th meeting of the Purchasing Agents Association of Rochester. Dr. Harold C. Hodge, of the University of Rochester, who served as Chief Pharmacologist for the Manhattan Department in the University of Rochester's Atom Bomb Project, was the guest speaker.

EASTERN NEW YORK ASSN. RECENT ACTIVITIES

F. Albert Hayes, Director of Purchases for the Bigelow Sanford Carpet Co., led the discussion on "How to Measure the Efficiency of a Purchasing Department" at the February 20th meeting of the Purchasing Agents Association of Eastern New York.

On March 20th the association held its thirteenth annual Executive Night. William L. Batt, president of the SKF Industries, spoke on "Management and Its Public Attitude". During the war Mr. Batt was a member of the Office of Production Management, and the War Production Board of which he was vice-chairman. In 1941 he was a member of the American mission to Moscow.

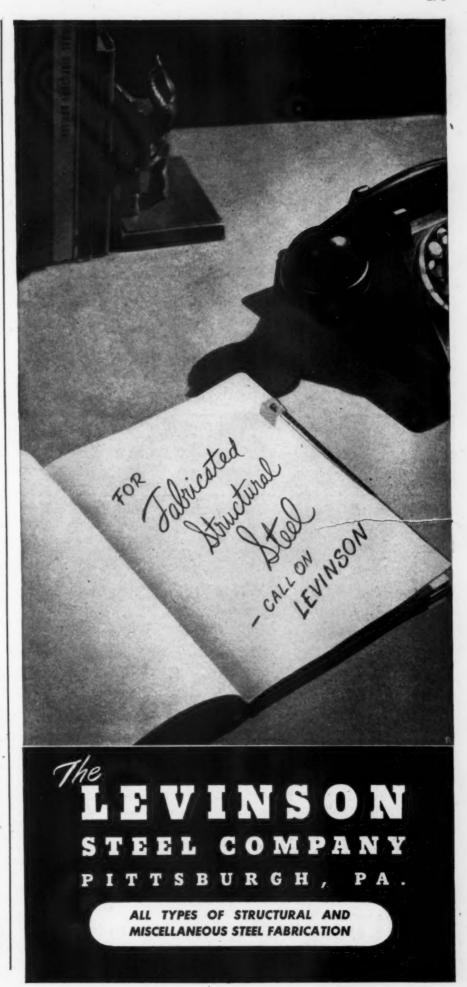
NEW OFFICERS ELECTED BY FLORIDA ASSOCIATION

New officers were elected at the recent annual meeting of the Purchasing Association of Florida. These include: President, O. L. Williamson; Vice-President, Dan D'Alemberte; Second Vice-President, A. J. Moulds; Secretary-treasurer, R. N. Garden; and National Director, Jerome L. Watson. The association is continuing its efforts to have a bill passed for centralized purchasing in Florida. This project has become one of the major issues to be dealt with by this year's legislature, as well as part of the platform of two of the gubernatorial nominees.

NEW OFFICERS ELECTED BY HOUSTON ASSOCIATION

Sam H. Harper, division purchasing agent, Pure Oil Co., Houston, Texas, was elected president of the Purchasing Agents Association of Houston at its re-

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LARGEST INDEPENDENT AND EXCLUSIVE METAL BALL MANUFACTURER

(Continued from page 271)

cent annual meeting. Other officers include: 1st vice-president, J. B. Thompson; second vice-president, C. S. Frink; secretary, James Cox; treasurer, W. J. Peddie; national director, W. R. H. Mau; and alternate national director, Earl R. Cobden.

"BUYERS IN A BUYERS' MARKET" SUBJECT OF HEINRITZ TALKS

"How Buyers Behave in a Buyers' Market" was the topic discussed by Stuart F. Heinritz, Editor of Purchas-ING Magazine, before several business and trade groups during the past month. On March 6 Mr. Heinritz addressed the Connecticut Salesmen's Association, an organization of building materials manufacturers and distributors, at the Waverly Inn, Cheshire, Conn. On March 10 he spoke before a dinner meeting of the Sales Executive Council of the Baltimore Association of Commerce, at the Park Plaza Hotel, Baltimore at which more than 100 people witnessed the presentation of the Dartnell gold medal and certificate to E. W. Meuse, general passenger agent of the Baltimore & Ohio R. R. Co., winner of the annual nationwide contest for the best sales letter. On March 18 Mr. Heinritz also spoke on the same topic at a luncheon meeting of the St. Louis Electrical Board of Trade.

SURPLUS MATERIALS DISCUSSED TULSA ASSOCIATION MEETING

"Disposal of Surplus Material and Used Equipment" was discussed in detail at the forum session of the March 11 meeting of the Purchasing Agents Association of Tulsa. N. C. Draper, Shell Oil Co., served as discussion leader. Guest speaker at the dinner-meeting was R. J. Rice, International Nickel Co., Houston, Texas, who spoke on "Castings and Forgings". On March 25 a plant visitation was carried out at the plant of the Moorlane Co., in Tulsa. Announcement was made that J. C. Thompson, Jr., assistant general paint manager, Pittsburgh Plate Glass Co., Pittsburgh, Pa., would speak at the April 15th meeting on the topic of "Paint and Color Dynamics."

SYRACUSE, CENTRAL N. Y. ASSNS. AND MFGRS. ASSN. OF SYRACUSE HEAR HON. JOHN TABER SPEAK

A joint meeting of the Purchasing Agents Association of Syracuse, the Purchasing Agents Association of Central New York, and the Manufacturers Association of Syracuse was held on February 26 at the Onondaga Hotel in Syracuse, N. Y. The combined groups heard an address by Hon. John Taber, Chairman of the Appropriations Committee, House of Representatives, Washington, D. C., on the topic of "What's Ahead in Business". A large portion of his talk, however, was devoted to the matter of "government extravagance" in virtually

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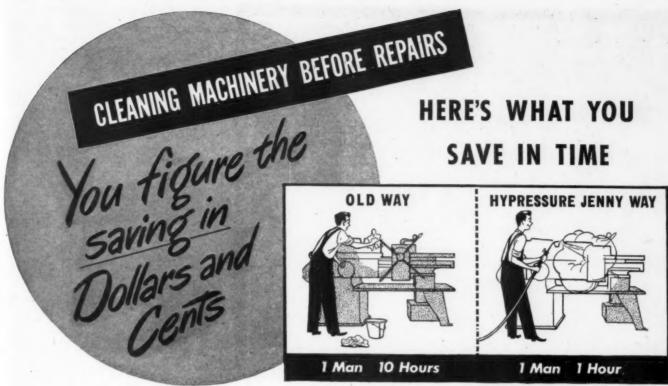
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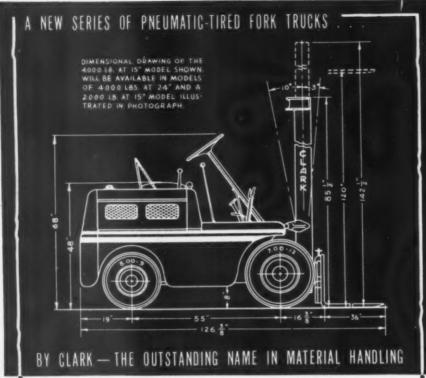
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(Continued from page 272)

every phase of the national administration, including the army, navy, sugar rationing, rent control and federal housing projects.

Government waste of public funds has been enormous he asserted. He also stated that since the end of the war all government agencies were asking for increases to permit the hiring of additional personnel. His opinion on this, he added. was that 1,000,000 employees should be cut from government rolls and a reduction of \$6,000,000,000 should be effected

in the federal budget.

Regarding the labor question he stated "I want to see labor have a fair chance at collective bargaining if it wants it. But we must realize that the government must cease to be a promoter of one side or the other-labor or management-in the disputes between these two groups, and must settle down to being an adjudicator or arbiter." In closing he summed up with the statement that "the time has come, with a national debt of \$260,000,000,000 and a tremendous demand from spenders for more and more money all the time, for the folks of the United States to recognize their responsibility of citizenship and to urge right thinking on the part of the office holders who represent them so that we can again have government by the people, of the people and for the people.

"OUT-OF-TOWNERS" NIGHT TORONTO ASSOCIATION

1 1 1

Lieutenant Colonel M. P. Johnston, former commanding officer of the "Ontario's" in Sicily and Italy, was guest speaker at the "Out-Of-Towners" Night meeting of the Purchasing Agents Association of Toronto on March 12, at the Royal York Hotel. Colonel Johnston, who was introduced by Captain Len Knowles, M. C., spoke on the topic "More Laughs Than Tears".

One hundred and fifty-one members and guests attended the "Members' Night" meeting on February 12. George Harrap delivered an address entitled "Quality Tells", and Drew Lindsay gave an educational talk on "Safety Glass".

SPRINGFIELD ASSOCIATION ASSISTS NEW GROUP

The Purchasing Agents Association of Springfield, Ohio, held its February 26th meeting in Lima, Ohio, to collaborate with a group of purchasing agents who contemplate forming an association in that section, covering Lima and the surrounding territory.

National director Weadon presented a report on national activities, and B. F. Downey reviewed the early history of NAPA experiences, District conferences that originated in District No. 6, and called attention to the NAPA bulletin, and the benefits of NAPA membership. A. R. Brane, president of the Springfield association, presided.

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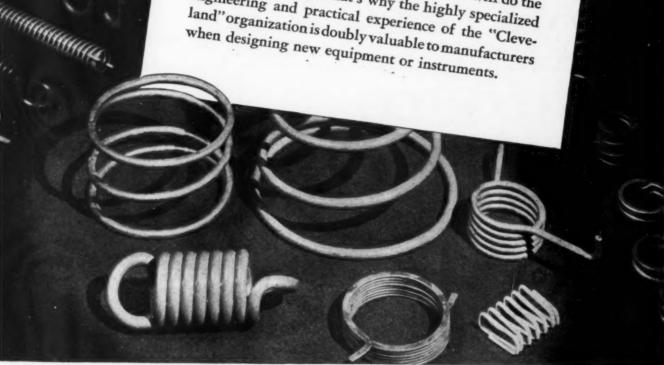
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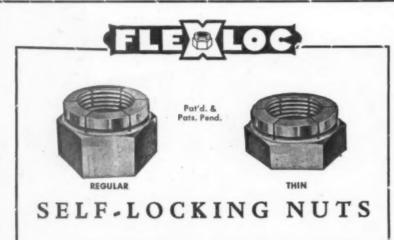
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COAL EXECUTIVE ADDRESSES CHATTANOOGA ASSOCIATION

Douglas J. Early, manager of sales in the Birmingham district of the Tennessee Coal, Iron and Railroad Co., was the principal speaker at the February 11th meeting of the Purchasing Agents Association of Chattanooga. Mr. Early discussed the outlook on the steel supply for the current year and also anticipated developments in the steel industry.

PURCHASING AWARD ESTABLISHED BY CHICAGO ASSOCIATION

The Purchasing Agents Association of Chicago has established a yearly award to be presented by District No. 3 to the man who has by precept, example, or distinguished service, contributed the most to the advancement of purchasing in the district. The award is to be known as the Henry L. Brueggemann Award, in commemoration of the late purchasing agent of the Acme Steel Co. District 3 vice-president Gilbert Swanson has appointed a committee of three consisting of Basil Nelson, Twin Cities Association, R. C. Hopkins, Kansas City Association, and Arthur Pearson, Chicago Association, to make the first award and establish permanent procedure and modus operandi to aid and guide future committees.

PURCHASING EFFICIENCY-PROFICIENCY TOLEDO ASSOCIATION

1 1 1

Stuart F. Heinritz, Editor of Purchasing Magazine, New York, N. Y., was the guest speaker at the March 20 dinner meeting of the Purchasing Association of Toledo, Ohio, held at the Toledo Yacht Club. "Efficiency and Proficiency in Purchasing" was the subject of his address.

PUBLIC BUYERS MEET IN SACRAMENTO CALIF.

The Annual Conference of the California State, County and Municipal Purchasing Agents Association was held in Sacramento, Calif., February 20, 21 and 22. Lowell R. Smith, Deputy Purchasing Agent, State of California, presided over the conference. Among the subjects widely discussed during the three-day session were the problems being encountered by tax-supported agencies in buying of surplus property through the WAA, difficulties encountered through escalator clauses, new physical and social problems arising through increased population in California and the budgetary needs of the various state, county and municipal organizations.

On the final day of the conference it was decided that the 1948 convention would be held in Southern California, the actual selection of a site being left up to the executive committee. New officers were elected as follows: Donald A.

(Please turn to page 278)

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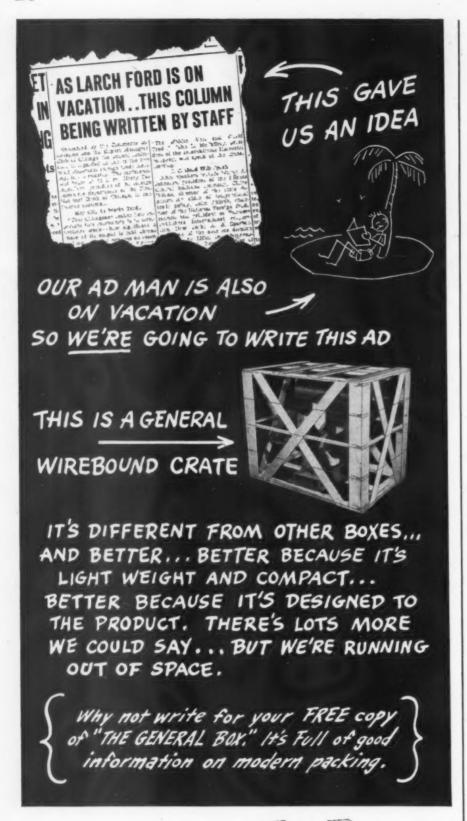
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Magill, Glendale City, president; Martin H. Gerry, III, City and County of San Francisco, first vice-president; J. W. Hughes, assistant purchasing agent for Los Angeles County, second vice-president; and Verne O. Gehringer, San Diego County, secretary-treasurer. The association adopted a resolution calling for better facilities in purchasing and channeling surplus war materials to tax supported bodies.

ANNUAL NORTHWEST CONFERENCE BEING HELD IN VANCOUVER

The Purchasing Agents Association of British Columbia, Vancouver, B. C., is playing host to the Washington and Oregon associations at the 11th Annual Northwest Purchasing Agents Conference, being held April 26 and 27 at the Hotel Vancouver, in Vancouver, B. C. The conference is being preceded by the Spring District No. 1 Council meeting on April 25 at the Georgia Hotel. The Public Buyers Group meeting is also being held on the 25th.

BRITISH COLUMBIA ASSN. FEBRUARY ACTIVITIES

The regular monthly meeting of the Purchasing Agents Association of British Columbia, held on February 11th, was entirely devoted to association business. President Brad Watson and vice-president Reg Baker reported on the District No. 1 Council Meeting held in San Francisco on January 17th. The monthly meeting sponsored by the Educational Committee, in the form of a panel discussion, was held at the Hotel Georgia in Vancouver on February 26. Members of the association also visited the B. C. Sugar Refining Co. Ltd.

INDUSTRIAL, AGRICULTURAL FILMS SHOWN AT CANTON MEETING

The program at the February 19th meeting of the Purchasing Agents Association of Canton, Ohio, consisted of motion pictures covering Ohio industries and agriculture, which were shown through the courtesy of the Standard Oil Co. Two new members and two transfers of membership were announced and the new members introduced

PANEL ON INVENTORY POLICY LOUISVILLE ASSOCIATION

A panel discussion by members on the subject "Inventory Policies for the Near Future" featured the regular monthly meeting of the Purchasing Agents Association of Louisville at the Kentucky Hotel on February 18. Paul J. Martersteck, led the discussion. Other panel members were Lloyd Greenebaum and Frank G. Hinkebein. The association held its Annual Executive Night meeting on March 19. National Secretary George A. Renard was the guest speaker, de-

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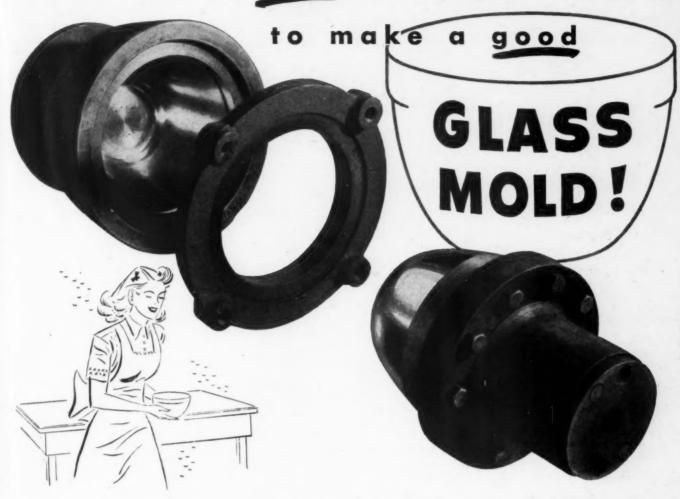
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BLAW-KNOX ELECTROFORGED STEEL GRATING

(Continued from page 278)

livering some pertinent remarks on current events and developments vital to purchasing. William M. Kerrick was recently appointed general chairman for the forthcoming Seventh District Conference, scheduled to be held in Louisville next fall. Tentative dates are October 17-18, with headquarters at the Kentucky Hotel.

INTERNATIONAL TRADE DISCUSSED MEMPHIS ASSOCIATION MEETING

"International Trade" was discussed by Prof. Charles S. Brown, professor of Economics, Memphis State College, before the February dinner meeting of the Memphis Association of Purchasing Agents. This was one of a series of lectures Prof. Brown is giving on the association's educational program each month. A technicolor movie of New England scenes, entitled "New England Calling" was shown through the courtesy of the Standard Oil Co. following Prof. Brown's lecture. W. E. Rier was elected to be presented before the District Council for vice-president of the Seventh District in the National Association.

ELECTRONICS TRENDS DISCUSSED BEFORE WILMINGTON GROUP

Future trends in the electronics and refrigeration industries were outlined to the Industrial Purchasing Agents Group of Wilmington at a luncheon meeting in the Hotel DuPont, by Dr. Courtney Pitt, economist for the Philco Corporation.

Dr. Pitt predicted substantial radio sales over and above those of last year, especially for sets with frequency modulation, but did not express too much optimism over the immediate future of television. He stated that television still requires several more years of development before it can be a fixture in practically every home, as is the case of the radio.

INDUSTRIAL PURCHASING COURSE NORTHERN CALIFORNIA ASSN.

The Purchasing Agents Association of Northern California began on March 4th its 1947 Educational Course in Industrial Purchasing. As during the past two years the classes were conducted by Professor Royal A. Roberts, of the School of Business Administration, University of California. Six sessions, constituting the program, were held in the auditorium of the Mills Tower in San Francisco. The subjects covered during the various sessions include: 1) Purchasing Department Function, procedure, organization and personnel; 2) Buying the Right Quality (including inventory control); 3) Sources, assurance of supply, forward buying and speculation; 4) Price, price policies and price forecasting; 5) Budget, traffic claims, legal aspects, reports, and measurement of efficiency; and 6) Participation in and with Top Management.

(Please turn to page 282)

specify this on the outside



to get durabilit

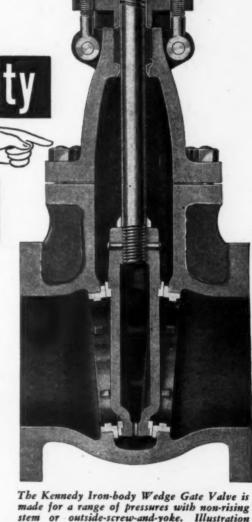
inside

Kennedy Valves are durable. Look at this iron-body gate valve . . . note the stout construction of the disc . . . the exceptionally thick and wide disc and seat rings . . . the heavily proportioned stem threads.

You get these and many other features when you specify Kennedy Valves. Want full details? . . . write for a copy of Kennedy's 240-page Catalog. It contains complete information on the Kennedy bronze and iron-body gate, globe, angle and check valves, pipe fittings, flanges, and other valves and accessories.

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BUY FROM YOUR LOCAL DISTRIBUTOR



made for a range of pressures with non-rising stem or outside-screw-and-yoke. Illustration shows standard type, outside-screw-and-yoke.

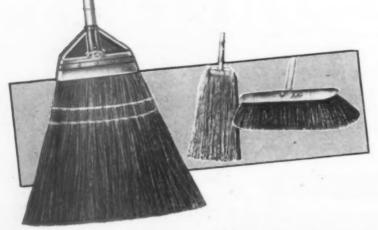
valves-pipe fittings-fire hydrants

THE KENNEDY VALVE MFG. CO., ELMIRA, NEW YORK Offices and Warehouses in Principal Cities



ACTUALLY, it's as elementary as the difference between a palm tree and a corn-stalk. The fibers in the Fuller Broom are carefully selected from leaf stalks of various palms which have an average growing span of 16 years. A corn-stalk, on the other hand, has just one growing season. Obviously, it does not develop to stand the rigor of the years.

To give added durability to the Fuller Broom, the upper ends of the fibers are encased in a light metal shell. This shell adds rigidity to the broom in not only sweeping, but effectively prevents shedding of the fiber. For "the finest tool of its kind", write today.



Proved by actual service tests

THE FULLER BRUSH COMPANY

ALJIAN, ZELOMEK ADDRESS CHICAGO MEETINGS

George W. Aljian, National president, was the guest speaker at the February 20th meeting of the Purchasing Agents Association of Chicago. On March 13th A. W. Zelomek addressed the association on "The Trend of Prices". Mr. Zelomek is president and economist for International Statistical Bureau, Inc., and economic consultant for Fairchild Publications, New York. On the same evening the Women's Division of the Chicago Association held its "Company Night". The meeting was conducted by Ruth Dux and Rhoda Stewart who spoke on general purchasing problems and how the association has helped them to solve them.

THE STUART HEINRITZ SPEAKS AT CLEVELAND MEETING

The annual Executive Dinner meeting of the Purchasing Agents Association of Cleveland took place on February 20th at the Hotel Cleveland. Stuart F. Heinritz, Editor of Purchasing, spoke on "Efficiency and Proficiency in Purchasing." The Orpheus Male Chorus, conducted by Dr. Charles Dawe, presented a musical program. The annual Ladies Night was held on March 20th. The forum meetings on steel, lumber and containers, preceded the regular meeting. An all-girl orchestra entertained during the dinner with music and specialty numbers.

SALES EXECUTIVE ADDRESSES RHODE ISLAND ASSOCIATION

Frank W. Lovejoy, sales executive of the Socony-Vacuum Oil Co., New York, N. Y., was the guest speaker at the monthly meeting of the Purchasing Agents Association of Rhode Island on February 24th at the Narragansett Hotel in Providence.

"TRADE AND ECONOMICS" CINCINNATI ASSOCIATION

1 1 1

Andre Michalopoulos, statesman, author and orator, was guest speaker at the March meeting of the Purchasing Agents Association of Cincinnati, held in the Victory Room of the Hotel Gibson. Mr. Michalopoulos spoke on "Trade and Economics—The Basis of World Peace".

GEORGE A. RENARD ADDRESSES NEW ENGLAND ASSOCIATION

George A. Renard, Executive Secretary-Treasurer of the National Association was the principal speaker featured at the March 10th meeting of the Purchasing Agents Association of New England, held in Boston, Mass. Prior to the evening meeting, which was attended by numerous company executives as well as purchasing agents, the regular afternoon

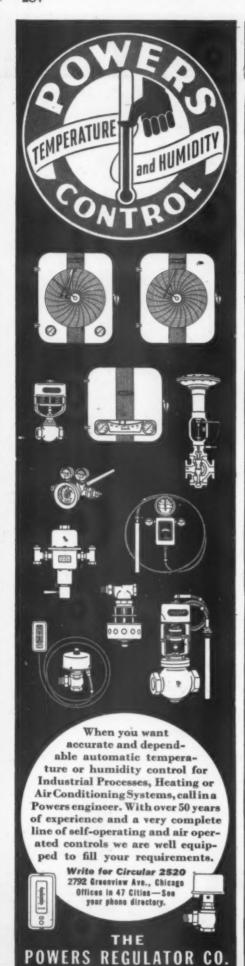
(Please turn to page 284)



How to describe HOLLISTON Special Purpose Fabrics so that you will immediately recognize a use for them in your industry? That is the problem; and it has us stumped. Because these amazing fabrics have so many variable characteristics, so many potential uses. For instance, they can be flame-resistant and water-repellent. They can be impervious to mild acids, alkalies and solvents. They can be endowed with surprising dielectric and accoustic properties. They can be any or all of these things. What do they look like? They can be made to simulate almost any material you wish, for they can be fine as silk or coarse as burlap and either limp or stiff. Many HOLLISTON Special Purpose Fabrics are already serving industry daily. Most likely there is a HOLLISTON Fabric that will meet all your requirements. Find out today!

HOLLISTON Special Ourpose Fabrics

THE HOLLISTON MILLS, INC., NORWOOD, MASSACHUSETTS



(Continued from page 282)

conference was held. The topic under discussion was "Follow-up Systems". On the 26th of February members of the association participated in a tour of the Gillette Safety Razor Co. plant in South Boston.

HOW BUYERS BEHAVE IN A BUYERS' MARKET

Editor Stuart F. Heinritz of Purchas-Ing Magazine, New York, was the principal speaker at meeting of the Purchasing Agents Association of St. Louis, March 18th at the Hotel Coronado. He spoke on the the subject "How Buyers Behave in a Buyers' Market."

7 7 7 RESEARCH AND BETTER LIVING—BALTIMORE

Dr. Walter A. Dew of E. I. du Pont de Nemours Co., spoke on "Research and Better Living" at the March 19th meeting of the Purchasing Agents Association of Baltimore, at the Lord Baltimore Hotel.

On March 28th and 29th the Baltimore association was host to the national directors of the National Association Eighth District.

MATERIALS HANDLING FILM "PAYLOADS PAY OFF"

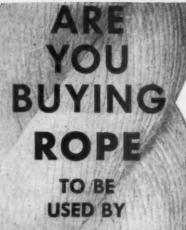
Proclaiming "a new formula for profits," a unique new movie on material handling—"Payloads Pay Off"—has been released by the Institute of Visual Training. It is a three-reel, 26-minute black-and-white sound picture, available for both 16-mm. and 35-mm. projectors. Produced under a grant from Automatic Transportation Company, 149 West 87th Street, Chicago, manufacturers of electric industrial trucks, "Payloads Pay Off" was filmed with the cooperation of General Electric Company, at whose Pittsfield, Mass., works much of the action was photographed.

Unlike previous material handling movies which have been primarily advertising media for specific equipment, the new film is said to be a dramatization of the science of material handling itself. It takes its name from the recurring theme: that unit loads of materials efficiently handled with electric equipment are payloads and that such loads pay off in profits for management and ungrading for labor.

and upgrading for labor.

"Payloads Pay Off" will be distributed through the facilities of both the Institute of Visual Training and Automatic Transportation Company. Prints are being furnished to all of Automatic's sales representatives, and screenings may be arranged through them, through Automatic's Chicago headquarters or through the Institute, whose headquarters are located at 40 East 49th Street, New York.

It will be available for showing to industrial plants and associations, civic groups, educational institutions and similar organizations.



MAINTENANCE CREWS?

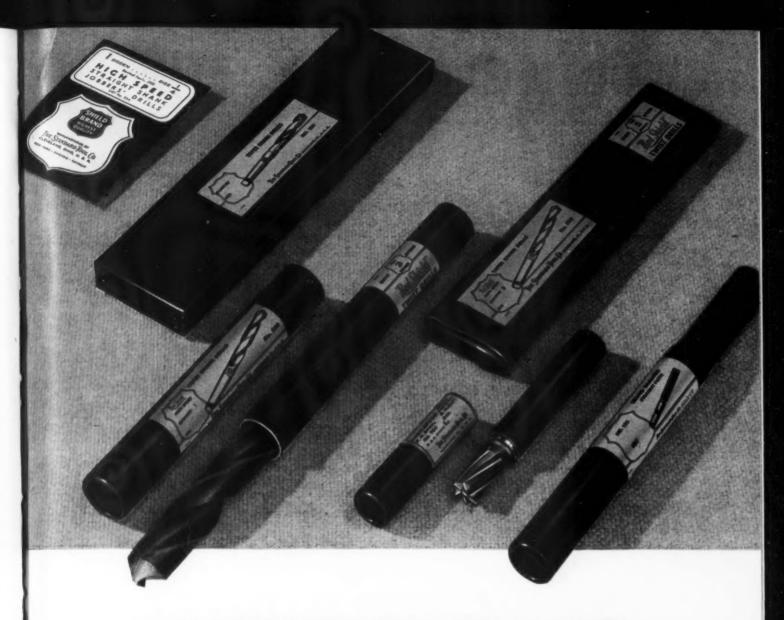


As a purchasing agent, you are naturally interested in the safety factor, durability and service life of the products purchased for your maintenance crews.

When in the market for cordage, investigate Whitlock Waterflex dope—a scientifically lubricated and waterproofed product that remains completely flexible under all conditions—a rope with maximum strength, dependability and service life.



WHITLOCK CORDAGE COMPANY 46 SOUTH STREET NEW YORK 5, N.Y.



IMPROVED PACKAGING

an added Shield Brand Value

THE quality and utility of Shield Brand Tools is protected from factory to user by improved packaging.

As an added convenience, all Shield Brand Tools of High Speed Steel are packaged in Green Containers with Orange Labels. Those of carbon steel in Blue Containers with Yellow Labels. Thus you can quickly identify and select from stock by the color of its package, the type of tool desired. Standard Shield Brand Packages, the use determined by the requirements of each tool are—individual tubes of strong tough cardboard; metal edge cardboard boxes, strongest type known; heavy craft paper, and tough manilla paper envelopes.

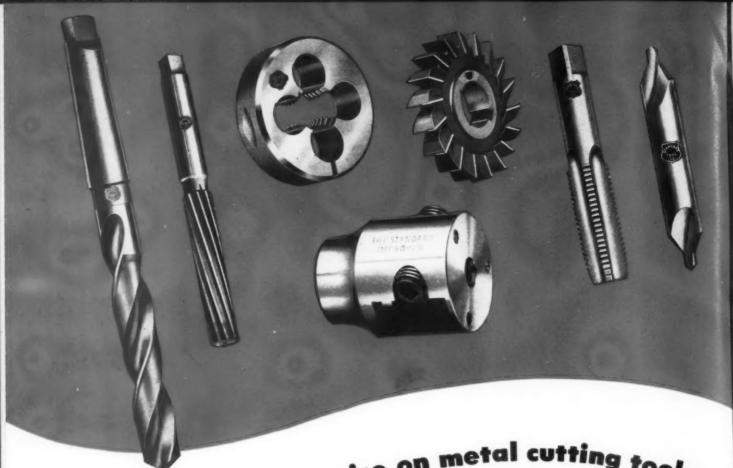
Thus modern improved packaging adds both value and convenience to Standard Shield Brand Drills, Reamers, Taps, Dies and Milling Cutters. Mill Supply Distributors from coast to coast supply these fine tools.



THE STANDARD TOOL CO.

CLEVELAND

Warehouses: New York · Detroit · Chicago



for COMPLETE service on metal cutting tools



SHIELD BRAND

THE Standard Shield Brand Line of metal cutting tools is complete.

Shield Brand Drills, Reamers, Taps, Dies, Milling Cutters and Special Tools—all made by one responsible maker—to the highest standard of quality and performance—are available at Leading Mill Supply Distributors from coast to coast.

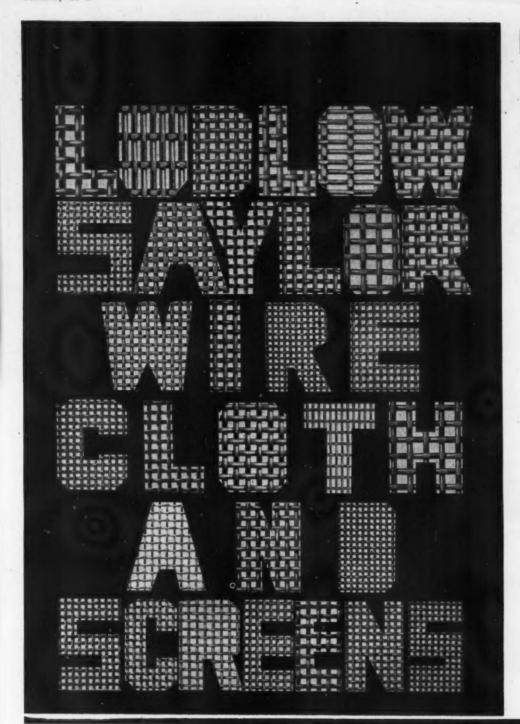
By Standardizing on Shield Brand Tools,

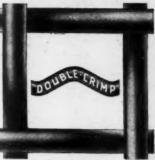
time and money can be saved in your purchasing department, stockroom and tool crib, through simplification in ordering stock, in record keeping, and tool maintenance.

Mechanics like the uniform operating characteristics of Standard Shield Brand Tools which save time and result in increased production per man and per machine.

THE STANDARD TOOL CO.

Warehouses: New York · Detroit · Chicago







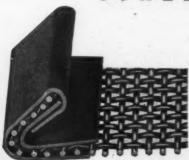


Flat-Top



The LUDLOW-SAYLOR WIRE COMPA NEWSTEAD AVENUE & WABASH RAILROAD ST. LOUIS 10, MO.

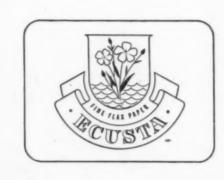
SUPE LIVE-WIRE SCREEN DECKS JACKETS a n d



Order Ludlow-Saylor Engineered Hook-Strips for tensioning vibrator-screen decks. They transmit to every tensioned wire an equal share of uniform vibration, evenly distributed throughout the entire screen area. They make screen decks last longer -step-up screen capacities-are easier to handle-quicker to install-need fewer adjustments and renewals.



YOUR LETTERHEADS SHOULD LOOK **IMPORTANT**



FINE FLAX WRITING LINEN FLAX WRITING

FINE FLAX AIR MAIL

FLAX-OPAKE BIBLE AND PRINTING PAPERS

BOXED TYPEWRITER PAPERS

Ecusta Paper Corporation

PISGAH FOREST, NORTH CAROLINA



HERE are four forms that you will find of especial interest. They include an Inventory Control form, Purchase Record, Purchase Requisition, and Purchase Order, and were supplied for use in the Forum by Purchasing Agent S. L. Altman of Maysteel Products, Inc., Mayville, Wis., makers of metal special-

The Purchase Requisition, Mr. Altman explains, is prepared by the requisitioner

for any items required with the exception of items used in producing customer orders. Requisitions are prepared by the stock clerk for all material required in production. Our business, he states, is fabricating metals for various customers and because customers' requirements vary greatly, we have a limited number of what may be termed stock items. Therefore, the bill of material for each production order is processed by the steck

clerk, and separate requisitions are prepared by him for all items to be purchased.

The requisition form carries an "Inventory Column". This is used to report the actual bin inventory. The "On Order" column gives the total quantity on open purchase orders. The "Reserved" column is used to show the total quantity reserved for other production orders,

(Continued on page 290)

Address	Purchase Req Maysteel Produ	ets, Inc.	T	Purchase Order No	*******************************	194	********
Ship Via	Collect Prepaid	**************************************	********			***********	0
	***************************************	Dept	*********	Che		*************	*******
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	Approved By:				,	Del.	

This is a large form, 81/4" x 103/4". The "Inventory" column is used to report actual bin inventory. "Stock" column shows unobligated quantity. See text.

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Purchase Record form. It is 12%" wide and 5" deep. It is self-explanatory. This form is placed ahead of Inventory Control card in file, thus providing complete history of each item recorded.

(Continued from page 289) and the "Stock" column shows the remaining unobligated quantity.

Purchase Order: Nine copies of the Purchase order are made, with the following color scheme and distribution:

- 1. Original, White, to vendor;
- 2. Acceptance of Order, White, to be signed by vendor;
- 3. Purchasing Department Follow-up Copy, yellow;
 - 4. Accounting Department, pink;
- 5. First Shipment, Accounts Payable, green:
- 6. Second Shipment, Accounts Payable, yellow;
- 7. First Shipment, Material Control, green;
- 8. Second Shipment, Material Control, yellow;
- Receiving Department file copy, blue.

After the first two copies are mailed

to the vendor, the Purchasing Department follow-up copy is placed in a Remington Rand follow-up folder (each order being placed in a separate folder), and filed under the vendor's name.

The first follow-up date is set up for one or two weeks, depending on distance of vendor from plant, to check for the return of our acceptance copy or an acknowledgment from the vendor. Provision is made on the reverse side of this copy (reproduced) for recording partial deliveries and contacts or communications with the supplier.

The pink copy is sent to the Accounting Department, furnishing advance notice of the financial obligation.

The balance of the forms are sent to the Receiving Department and filed there by order number in folders pending deliveries. If the order is completed in one shipment the Receiving Department completes the detailed information, sending the accounts payable copy to the Accounting Department, the material control copy to the stock clerk, and files the Receiving Department copy. This is repeated for the second shipment, as indicated in outline of distribution of copies. If more than two shipments are received against one order, a standard receiving form is used which is distributed in the same way.

"Conditions and Instructions" printed on back of purchase order, include the following:

"We will not be responsible for goods shipped without formal order number.

"SHIPMENTS—All shipments are to be made as noted on the face of this

"No charge allowed for boxing, crating or packing. Provide a packing stip for each shipment.

"Mark container holding packing slip (Continued on page 292)

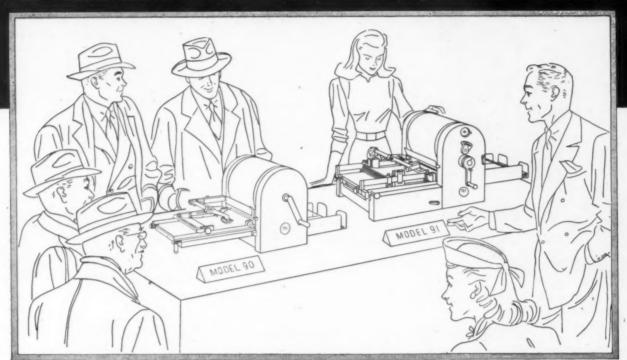
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The Inventory Control Card is 12%" wide and 5" deep. It gives information on physical balance, and provides production and purchase order data. See text.

Ready, willing and able . . .

AND PROMPT DELIVERY, TOO!

Automatic feed, hand-operated Mimeograph brand duplicators



MODEL 90—turns out those clear, readable copies
—in color or in black-and-white—quickly, efficiently and at low cost. Popular price.

MODEL 91—put it to solving those paper work problems—get quality results economically. Free instruction if needed. Medium price.

Easier Stencil Preparation — Better Duplicated Copies

The new high-visibility cushion sheet for use with Mimeotype (blue) stencil sheets is a major improvement in stencil duplicating.

High visibility—easier on the eyes when typing stencil and proofreading. Easier, quicker corrections.

High copy quality, sharp letter outlines, blacker reproduction.

Ask your distributor for details.

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Place my order forModelMimeograph brand duplicator with the distributor nearest me.
Have a salesman call.
Send me more information on Model
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The Mimeograph brand duplicator

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MIMEOGRAPH is the trade-mark of A. B. Dick Company, Chicago, registered in the U.S. Patent Office.

Letter Perfect

Paper

Paper

Secretarian

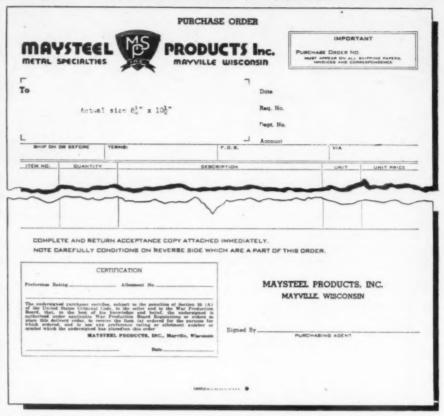
**Secr

Every letter carries a message beyond what its words convey. The letterhead design and the paper upon which the sender's thoughts are carried both express by appearance the character of the sender. Perfection of one of these—letterhead paper—has been Fox River's business for 64 years. Anniversary Bond of 100% cotton fibre is Fox River's "letter-perfect" paper. Strength, crispness and crackle are its qualities that enhance your written words. Ask your printer why cotton fibre content paper is the finest. Fox River's grades of 100, 75, 50 and 25% cotton fibre papers meet every business need. Fox River Paper Corporation, 403-D South Appleton Street, Appleton, Wisconsin. Bond, Ledger and Onion Skin Papers

OUR WATERMARK is your quality guarantee
Look through the paper see all three!
1 COTTON FIBRE
2 25 - 50 - 75 or 100% COTTON FIBRE CONTENT

3 MADE "by FOX RIVER"

(Forms Forum Continued from page 290)



			CEIVING DATA	
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DATE	M. CONTACT	8. CONTACT	REMARK	
		-		

Reverse of Purchasing Department follow-up copy, for recording receiving Data and Communications.

in multiple container shipments.

"When making LCL shipments, our purchase order number should be shown on material or container, packing slips, and bills of lading or carloading receipts. "INVOICES—Render invoices in Duplicate. Separate invoice must be rendered for each purchase order.

"Show our order number on all copies.
"If not rendered in accordance with
(Continued on page 294)



"Before we talk about saving money on forms," said the P.A., "let me draw 3 circles..."

WITH these 3 circles, I can show you where we spend most on printed forms. And that's important. Because where we spend most we can save most."

Top management's eyes followed the purchasing agent's pencil as he drew a small circle to represent the cost of printed forms.

"Even with concessions on quality," said the P. A., "we can't save much here . . . a few hundred dollars at most."

He drew a larger circle.

"Now here," said the P. A., "is the cost of writing, handling and using forms. It's 10 to 50 times the cost of the forms, themselves. That's why savings, here, can really mount up—when continuous forms are designed and manufactured to meet the specific requirements of the job for which they're intended.

"And those savings multiply themselves in this area," he pointed out as he drew the third and largest circle.

"For these are total operational costs affected by record systems. And savings through better control can be almost incalculable."

(Note: The P. A. was working as an active "partner" of top management in his company's over-all planning ... and Standard's recommendations and Kant-Slip Continuous Forms are now in operation, saving *real* money.)



FREE: VALUABLE NEW BOOKLET,
"Q's & A's," tells how to buy continuous, marginally-punched forms
by exact specifications. A practical
tool for measuring form values by
performance standards. Write for
your copy, today. Or phone your
Standard Register representative,
get the story of savings obtainable
in the second and in the third circle.

THE STANDARD REGISTER COMPANY

Manufacturer of Continuous Marginally Punched Business Forms and Feeding Devices
404 CAMPBELL ST., DAYTON 1, OHIO

Pacific Coast: Sunset McKee-Standard Register Sales Co., Oakland 6, Calif.; Canada: R. L. Crain Ltd., Ottawa; London: W. H. Smith & Son, Ltd.



In business as in other affairs the trend is toward simple, straightforward and time-tested methods. Cesco Visible Records meet the accounting needs of today and tomorrow for both large and small businesses with these enduring values:

- 1. SIMPLICITY—complete freedom from gadgety mechanisms and highly special supplies.
- 2. SPEED—maximum visibility, legibility and ease of posting. No "up-hill" nor backhanded writing positions to slow up the work.
- 3. SECURITY—a misplaced or lost record leaves a conspicuous gap in the sequence of records.
- 4. FLEXIBILITY—the same basic system fits all business needs.

 Expands or compresses if, when, and as needed to meet changing conditions

Whether you are launching a new business or are stepping up the efficiency of a going concern it will pay you to investigate Cesco Visible Record Equipment and Business Systems.

Write for Catalog "G"

The C. E. SHEPPARD CO.

.4405 Twenty First St. Long Island City 1, N. Y. (Forms Forum continued from page 292)

	ITEM NO.	DATE RED'D	QUAN. REC'D	BAL DUE	ITEM HILL	DATE REU'D	DUAN RED'D	8. DUE
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Pro. No Deliver To								
Weight Rote Am't \$		-	-		-		-	
Date of lavInv. NoBy	-	-				-		-

Receiving Information forms on face of Receiving Department file-copy of purchase order. These forms are duplicated on "First Shipment" and "Second Shipment" copies of purchase order going to Accounts Payable and Material Control. The back carries form similar to that on Purchasing Department follow-up copy for "Receiving Data".

instructions, invoice will be returned and discount figured from date corrected invoice is received.

"This order is placed by the purchaser with the understanding, and in accepting the seller agrees that no Federal statute, or order, or regulation has been violated in the manufacturing or sale of the items covered by this order. Goods subject to our inspection on arrival, notwithstanding prior payment to obtain cash discount.

"DEFECTIVE MATERIAL—We reserve the right to cancel if orders are not filled as specified.

"Defective goods will be returned at your expense.

"No goods returned as defective to be replaced without our formal purchase order."

Purchase Record Card

Mr. Altman advises that the purchase record and Inventory Control Cards (reproduced) are used in an Acme visible record file, stating that the visible record has been found invaluable in giving a complete and accurate record of purchases, costs and inventory control.

The purchase record form is placed ahead of the inventory control card in the Acme file thereby giving a complete picture for each item recorded on the cards. The purchase record card is self explanatory.

Inventory Control Card

"The inventory control card section at left under the caption "Inventory" shows the actual physical balance in stock by simply adding all receivings to the previous balance and deducting all issues. Under the caption "Purchases," the Production Order number is shown opposite

the Purchase Order Number to tie the specific purchase up with a production order, and the column "Date to be Shipped" is the date shipment has been promised by the supplier. "Total Balance" column is as simple as the explanation shows, that is bin balance plus total balance due on all open orders. Reservation for production orders are deducted from the Total Balance to get the Available Balance or quantity which would be available for use on future production orders.

COMBINATION RADIO AND INTER-COMMUNICATION OFFICE UNIT

1 1 1

A combination radio and intercommunications unit for the modern office is announced by Electronic Laboratories, Inc., Indianapolis, Ind. Finished in dark mahogany, both radio-master and slave units are styled to blend with office furnishings. Operated on either alternating or direct current, four slave stations may be included in the circuit.

UARCO ACQUIRES PLANT AT DEEP RIVER, CONN.

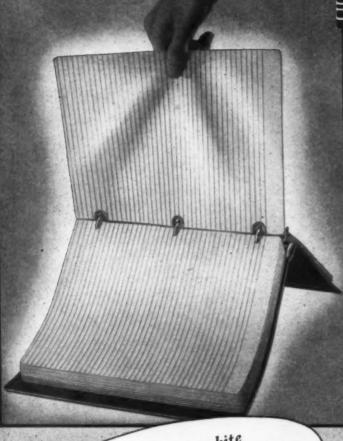
Acquisition of a new plant at Deep River, Connecticut, by Uarco Incorporated, Chicago, Ill. manufacturers of continuous business forms and systems, was announced today by Walter R. Barker, president.

The additional plant was found necessary to handle the growing volume of Uarco sales in the eastern states and is part of the firm's expansion plans projected for 1947, Mr. Barker said. Uarco now operates other plants in Chicago, Cleveland and Oakland.

With the exception of manifold products which are made only in Cleveland, the Deep River plant will be able to

(Please turn to page 296)

When they ask you with they box FILLERS for RING BOOK FILLERS SEE THAT THEY GET SEE THAT THEY GET



Available in both white

Available in both white
and "Eye-Ease", paper in a variety
and "Eye-Ease", paper in a meet
of sizes and rulings to meet
every requirement.

NATIONAL

METAL-HOLED SHEETS

Here are the filler sheets that battle wear . . . with thin, strong copper reinforcements bonded fast to the paper to prevent wearing out . . . and pulling out at the holes.

They're used just like ordinary sheets ... no bulking ... go smoothly through typewriter and duplicating machines. Sheets lie flat ... ride the rings without fraying ... guard against loss of valuable data and important information.

At Your Stationer's
OR
Write Us Direct for Samples

NATIONAL BLANK BOOK COMPANY

HOLYOKE, MASSACHUSETTS

NEW YORK

CHICAGO

BOSTON

SAN FRANCISCO

COMMERCIAL FORMS AND SYSTEMS



An ally of modern management, Reynolds and Reynolds is one of the world's largest suppliers of printed or lithographed control and operational forms.

- CARBON INTERLEAVED SYSTEMS
- . BUSINESS MACHINE FORMS
- PAYROLL CHECKS and SYSTEMS

Effective Advertising
Literature, Distinctive
Stationery and Business
Forms of every kind



(Continued from page 294)

produce all types of business forms now manufactured by the company. The building is a modern, four-story structure. It is being furnished with the latest type of equipment used in the production of business forms and it is expected that remodeling and installation work will be completed in time to permit substantial operations begining in July. Approximately 200 employees will staff the plant when operating at full capacity.

F. P. RYAN NAMED TO BOARD OF DIRECTORS OF O.E.M.I.

Fortune Peter Ryan, assistant to the president, Royal Typewriter Company, New York, has been elected to the board



F. P. Ryan

of directors of the O. E. M. I., trade association of office machine and steel equipment industries. The purpose of the Office Equipment Machinery Institute is to promote the welfare of the industry.

Maurice C. Hull, Cleveland district manager of the Royal Typewriter Company, was recently presented with a gold watch by Allan A. Ryan, chairman of the board, marking Mr. Hull's 25 years of continuous service with the company.

FORM R. C. ALLEN BUSINESS MACHINES, INC.

Recent formation of R. C. Allen Business Machines, Inc., Grand Rapids, Mich., to succeed several of the Allen com-



R. C. Allen

panies formerly operated as separate corporations, is announced by Ralph C. Allen, president.

According to Mr. Allen, the new corporation, registered under the statutes of the State of Michigan, is now coordinating functions of the former Allen Calculators, Inc., R. C. Allen Products, Universal Cash Register Company, and the Allen Realty Corporation.

The new company, with headquarters in Grand Rapids, operates four manufacturing plants there, with a total of 248,820 square feet devoted to manufacture of a complete line of R. C. Allen adding, bookkeeping, calculating, cash registering, and other office machines.

R. C. Allen Business Machines, Inc., owns the entire stock of R. C. Allen Calculators, Ltd., of Canada, and of R. C. Allen Business Machines, Inc., of Delaware. The latter corporation operates company branches located in New York City, Boston, Washington, Atlanta, Dallas, Los Angeles, San Francisco, Seattle, and Chicago.

Officers of R. C. Allen Business Machines, Inc., are: R. C. Allen, president; K. P. Phelps and R. A. Buchoz, vice presidents; F. H. Staat, L. E. Smith, H. A. Greene, R. G. Burti, assistant vice presidents; M. T. Snyder, treasurer; G. T. Harrison, assistant treasurer; H. J. Vos, comptroller; J. K. Fell, assistant comptroller; F. Wagner, auditor; and W. F. Metzger, secretary. The board of directors include Messrs. Allen, Phelps, Snyder, Buchoz, Frank R. Bruce, and Carl Johnson.

COPYING MACHINE ELIMINATES DARK ROOM

1 1 1



Illustration shows Remington Rand Portagraph Model G-9, copying machine, designed for use in small and moderate sized business offices. It makes photographically accurate copies without the need for darkroom. The unit is built of steel and has a copying surface $9\frac{1}{2}$ " x 15", and is available for use with either a-c or d-c current. It is distributed by Photo Records Division, Remington Rand Inc., 315 Fourth Ave., New York 10, N. Y.

EVERSHARP APPOINTMENTS

Martin L. Straus, II, president of Eversharp, Inc., Chicago, Ill., announces the promotion of Larry Robbins to the post of executive vice president, and Tom Emmerson to vice president and general sales manager. He also announced the appointment of G. L. Frederick as special assistant to the president. Mr. Robbins previously was senior vice president and general sales manager, and until his new appointment Mr. Emerson was vice president in charge of domestic sales. Messrs. Robbins and Frederick are directors of the company.

(Please turn to page 298)

The Mark that is a message in itself

To the authority in antique silver, the hallmark or the maker's mark reveals the information that he needs to establish the authenticity of the piece as well as the date and place of its making. Modern silver, also by its mark, attests its sterling quality and the pride of its maker.

The mark to be found in every sheet of Crane's Paper likewise carries a message—a message of quality and craftsmanship, of the use of cotton and linen fibres only in the making of paper these 146 years. It is to be found in the Crane watermark which reveals itself when the paper is held against the light. It is our mark of pride in the making of these fine papers for personal, social and business use. It is your mark of assurance when you buy paper; when you use

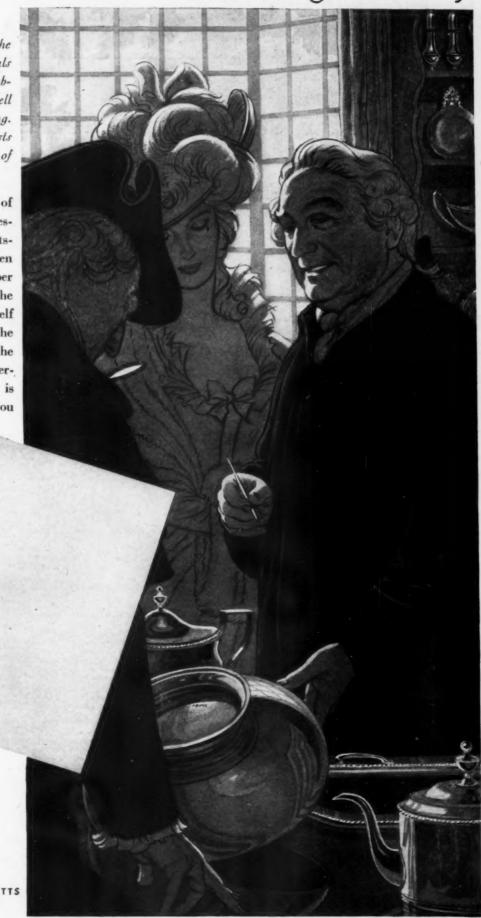
Crane's in your daily correspondence, in formal invitations, in matters of importance for reference and record.

Cranes



CRANE'S
FINE PAPERS

MADE IN DALTON, MASSACHUSETTS
SINCE 1801



PAPER CABINET AND **DESK FILES**

The illustrated typist's cabinet designed for holding different types of paper for stenographic use, is made in two models, one with label holders and one without.



and the one with label holders is intended to serve as a ready-reference file and depository for use on the executive desk. The cabinets are 10½" high, 11½" front to back and are open at the front only. They are of all-steel construction painted in office green. Trade name is Rite-Spot. Gordon L. Hall Co., Old Lyme, Conn.

SOUND-ON-WIRE DICTATING MACHINE

1 1 1

The Sound-on-Wire dictating machine has been introduced by Standard Business Machines Co., 542 South Dearborn St., Chicago, Ill. As the machine does not use cylinders or discs, basic cost of



Stenographer working from sound-onwire recording.

operation is that of electric current which is said to compare with that of operating a small light bulb. Recording is on a hair-size wire which may be used indefinitely without loss of its magnetic qualities. When a recording has been transcribed, wire can be used for new recordings, as a demagnetizing coil through which the wire travels before it reaches

(Please turn to page 300)

Levelcoat *

PRINTING PAPERS



Distributed by

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	CincinnatiThe Chatfield Paper Corporation
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IOWA	Philadelphia
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KANSAS	Providence
Topeka Carpenter Paper Company	SOUTH CAROLINA GreenvilleDillard Paper Company, Inc.
Topeka	Greenville
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LouisvilleThe Chatfield Paper Corp.	Chattanooga
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MONTANA	milwaukee
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If our distributors cannot supply your immediate needs, we solicit your patience. There will be ample Levelcoat Printing Papers for your requirements when our plans for increased production can be realized.

KIMBERLY-CLARK CORPORATION . NEENAH, WISCONSIN

122 East 42nd Street, NEW YORK 17 155 Sansome Street, SAN FRANCISCO 4

8 South Michigan Avenue, CHICAGO 3 22 Marietta Street, N. W., ATLANTA 3

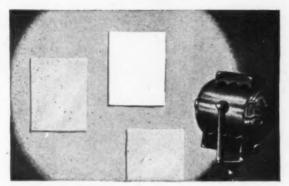
PRADEMARE



This advertisement is one of a series appearing in four colors in Fortune, Nation's Business, United States News, Newsweek and Business Week.

Test your word knowledge

of Paper and Printing



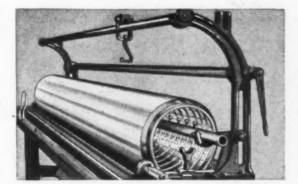
1. Brightness

- ☐ Incisive character of type
- Paper quality measured by whiteness
- ☐ Sharpness of outline in engraving



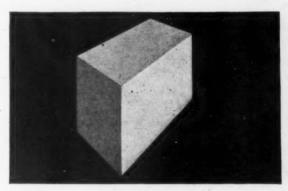
2. Supercalendered Finish

- ☐ Mechanically-produced finish on paper
- ☐ Varnish coating on paper
- ☐ Special paper for printing calendars



3. Dandy Roll

- ☐ Inking roller on a press
- ☐ Engraver's tool
- ☐ Roll used to smooth or watermark paper



4. Printing Solids

- Over-inked areas in a form
- ☐ Type larger than 72-point
- Part of plate for printing solid color

ANSWERS

Prightness is that quality in printing paper measured by its reflectance under certain standardized conditions. For new beauty and brightness, printers and buyers of printing who have long preferred Trufect* for quality find sparkling results in the new 1947 Trufect.

2 Supercalendered Finish is a mechanically-produced finish on paper, obtained by pressing the sheet between alternating hard and soft rolls. Fine finish is one of the features of new 1947 Trufect.

3 Dandy Roll is a skeleton roll—which is supported above the Fourdrinier wire and is used to watermark paper or to smooth the surface of the sheet.

4 Printing Solids are portions of plates used in printing solid colors. Even large solids print velvety smooth on the new 1947 Kimfect*
— a companion grade to the famous Trufect. Combining dependable printability with economy, the new Kimfect is a high quality paper for volume production.



For more effective printing, specify new 1947 fully coated Trufect and Kimfect. With a whiter, brighter surface, greater ink receptivity, and better general printability, they contribute added quality to fine printed pieces.



KIMBERLY-CLARK CORPORATION

NEENAH, WISCONSIN

*YRADEMARK

1872 - SEVENTY-FIVE YEARS OF FINE PAPER MAKING-1947



Rising Paper Company, Housatonic, Mass



(Continued from page 298)

the recording head automatically erases previously recorded material.

The Sound-on-Wire dictating machine is a light-weight, portable, dual purpose unit utilizing the electromagnetic principle of sound recording. The wire on which the sound impulses are recorded is wound on two electrically driven spools mounted in a self-contained wire magazine. Recordings can be played back innumerable times without loss of clarity, fidelity or tonal quality. A demagnetizing coil enables the dictator to change any part of his dictation at will.

The machine can be used as a recorder or transcriber or as both a recorder and transcriber, as the recording wire magazines are interchangeable and may be transferred from the recording unit to another unit used exclusively for transcription, or, the recording unit can be used for transcribing. The unit weighs less than 20 pounds. Transcription may be by means of a loud-speaker or head-

F. U. CONARD MADE PRESIDENT OF NILES-BEMENT-POND CO.

Frederick U. Conard, vice president of the Underwood Corporation, has been named president and general manager of



F. U. Conard

the Niles-Bement-Pond Company, West Hartford, Conn., succeeding Charles W. Deeds who resigned that he may devote all of his time to his personal interests. Mr. Conard joined the Underwood Corporation in 1919 as chief engineer of the computing machine division in charge of product design and manufacture. Later he became general superintendent of the Portable Typewriter works at Bridgeport: then works manager of the Sundstrand Corporation, Rockford, Ill.; works manager of the Sunstrand and Elliott-Fisher Division in Bridgeport; works manager of the Hartford, Toronto and Bridgeport Works, and in 1938 he became vice pesident of the Underwood Corporation.

FOR PROCESSING AMMONIA DIAZO WHITE PRINTS

1 1 1

Machine for processing ammonia type diazo white prints, known as the Revolute A Finisher, said to be sufficiently

(Please turn to page 302)

4-Second Loading



Precision engineered, sturdy Swingline

stapler . . , with its exclusive wide open channel for

quick, easy loading and trouble-free action ...

SAVES TIME AND TEMPERS!

Swingline stapler and staples make the speediest, smoothest-acting stapling team

in any office, factory, home or school!

Swingline STAPLES

SWINGLINE STAPLES

100% round wire for greater strength and penetration. Requires less glue, insuring perfect clog-free performance. Look for them in the red and blue box at your stationer's.

IT STAPLES . . . IT TACKS . . . IT PINS

SPEED PRODUCTS COMPANY, INC., LONG ISLAND CITY 1, N. Y.



Here are the answers to

your numbering problems

No matter what your problem is, you'll find the answer to it in the Roberts Catalog of Numbering Machines. There's a Roberts machine for every office or factory use — hand and typographic machines, machines for stamping and embossing on metal. Consult us on any problem of design.

SEND FOR YOUR CATALOG - NOW!



AUTOMATIC, ALL-PURPOSE MODEL FOR OFFICE OR FACTORY

5 movements; consecutive, duplicate, triplicate, quadruplicate and repeat. Dial set, dial locked. Choice of 5 styles of figures. Unconditionally guaranteed.

ROBERTS NUMBERING MACHINE CO.

BROOKLYN 8, NEW YORK





A HANDY CALCULATOR

FIGURES FAST

When and Where You Need Them

HERE'S THE ANSWER to management's demand for a low priced, fast calculator. Entirely portable. Ready to go any place—any time. Hundreds of auxiliary uses in large organizations. Keep one on every desk, where quick calculations are necessary.

SAVES TIME AND MONEY EFFORT AND ERRORS

IVAN SORVALL

210 Fifth Ave., New York 10, N. Y.

Ask for Bulletin FP-43



(Continued from page 300)

flexible to handle all known ammonia type diazo papers and specialties, is being produced by Paragon-Revolute Corp., 77 South Ave., Rochester 4, N. Y. Machine is featured by perforated stainless steel rollers, diaphragm pump for pumping aqueous ammonia to the vaporizing



tray, interval timer for temperature control, single switch control and fast speed. Ammonia feed may be accurately controlled by adjusting the stroke of the pump to suit the requirements of different materials. Rate of feed is adjusted by means of a knob on the control panel; setting is positive. Pump lifts ammonia from the original shipping container which is placed in the base of the machine. Machine may be adjusted for developing blueline papers at speeds as high as 34 ft. per minute. Normal speed is 15 ft. per minute, to handle all materials. Equipment is available for both 42" and 54" paper width capacities, for operation on 220 volts, 50 or 60 cycle a-c.

7 7 7 OFFICE MACHINE LIGHT

Illustration shows Tru-Lite fluorescent lamp designed expressly for use with office machines, introduced by the Standard Business Machines Co., 542 South Dearborn St., Chicago, Ill. It is claimed



that the lamp delivers 40% more light than ordinary fixtures by means of a deep-well reflector that controls and directs the light on the work and away from the worker's eyes. The lamp mounts on virtually any type office desk, including those with the modern rolled edge. Joint attaching the plastic reflector to the swivel arm permits complete flexibility of movement in every direction. The lamp is available in two color combinations, brown with a mahogany reflectorhead or grey with a grey reflector-head. (Please turn to page 304)

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how Mutual Life of New York

achieves closer control of supplies with HALF the work

...with KARDEX
VISIBLE CONTROL
of operating forms
and supply items



a combination order, delivery and perpetual stock control system that is extraordinarily accurate has been developed by purchasing officials of Mutual Life Insurance Company of New York through the use of efficient KARDEX control.

The plan has already yielded remarkable savings in time and labor, and is expected ultimately to achieve 50% reduction in inventory investment when deliveries become more dependable. Meanwhile, substantial savings are in effect through the maintaining of better balanced supply, purchasing in more economical quantities, and releasing for other work personnel no longer needed for operating the record.

Items are rarely out of stock, and very few are approaching the critical point—so smoothly does this system function! Graph-A-Matic signalling on the visible margins of the Kardex record provides positive and up-to-date knowledge of stock conditions. The signal is fully extend-

ed to the right when normal supply of an item is on hand; when the balance drops to Ordering Point, routine procurement procedure is initiated, with special signal positions designated to cover all contingencies.

Copies of all requisitions go to the Comptroller's Department, which with the use of Punched Card Tabulations records all disbursements, priced out at current average cost. This independent check proves the high degree of accuracy of Mutual's Kardex system. Discrepancies are extremely small but when they do occur, are easily traced and adjusted. Periodic item stock counts provide an additional cross check on the system.

Call your Remington Rand Systems Technician for details of how this unique Operating Form and Supply Item Record operates to obtain *unparalleled efficiency*. Or write to Systems Division, 315 Fourth Avenue, New York 10.

Simplify and save ...with KARDEX

Remington Rand

THE FIRST NAME IN BUSINESS SYSTEMS





This new post-war "Pendaflexer" brings you double filing convenience—a handsome, sturdy steel filing cabinet on wheels, plus hanging Pendaflex* folders.

Roll the "Pendaflexer" anywhere you need it—that's convenience number one. Then file and find papers instantly in modern hanging Pendaflex* folders—that's convenience number two!

It's a combination that will break every filing and finding speed record wherever used. Get your "Pendaflexer" now-immediate delivery.

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Vai	nø,									****	Red.	36
Add	ress							****	******	*****	****	

CHROME PLATED DESK TRAY

All steel swing-tier chrome plated desk tray in standard letter or legal size is being produced by the Shirl-Morr Stationery Products Mfg. Co., 3227 Redwood



Road, Cleveland Heights 18, Ohio. The top tray swings on a pivot to a 45 degree angle and automatically stops. Flocked rayon is veneered to the bottom of the lower tray to prevent scratching of surfaces on which tray may be used. Trays are also available in single units.

R. F. MILES AGAIN HEADS WIREBOUND BOX ASSOCIATION

R. F. Miles of Chicago, president of the Rathborne, Hair & Ridgeway Co., has been reelected president of the Wirebound Box Manufacturers Association. D. R. Simmons of the Elberta Crate & Box Co., Bainbridge, Ga., was reelected vice-president, and L. S. Beale of Chicago was reelected secretary-treasurer.

4 4 4 ADJUSTABLE COPYHOLDER

The Pres-to-Line copyholder has been introduced by E. C. Heard Co., 2542 East 52nd St., Huntington Park, Calif. Maker states compactness feature permits



operator to put device in desk with typewriter without removing the copyholder from its operating position. The copyholders are available in seven sizes from 12" to 36" and are designed for use with typewriters, billing machines, adding machines, and similar office equipment. Unit has adjustable line finder scale for making character counts and to aid in setting tabulation on typewriter.

RADIO TELEPHONE INSTALLED BY AKRON COMPANY

A radio telephone, first to be installed in an automobile in the Akron area, is now in service on one of the Firestone Company's Cleveland-Akron shuttle cars. Illustration shows Harvey S. Firestone, Jr., using the mobile radio 'phone which enables him to reach by telephone any office in Akron or any office in the entire country by long distance. The telephone in the automobile rings the same as a home telephone. When you lift the receiver to put in a call, the mobile radio telephone operator at Cleveland answers immediately, and makes connection with



Company offices throughout the country may be reached by the radio phone

the party requested. The box in the lower right corner of the picture contains the radio unit. A green light indicates when the set is tuned in to the Cleveland Bell Telephone transmitting station.

Best For You!

RediFixt 1947 W-2

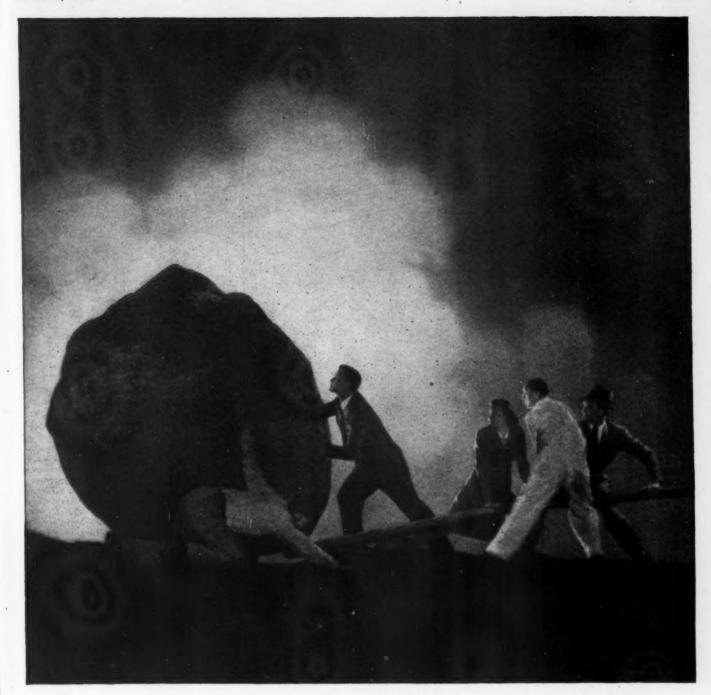
Withholding Tax Form

Write today for sample on officially approved PINK paper

CONSOLIDATED BUSINESS SYSTEMS, Inc.

Dept. 006 30 Vesey Street New York City, 7 inthe

IC.



LEAVING NO STONE UNTURNED

The men and women of International's organization are sparing no effort to supply your paper needs. The entire industry, in fact, is striving to meet the greatest demand ever known—with production schedules calling for an increase over last year's record output of 19 million tons of paper and paperboard.

International's organization — woodsmen, millmen, salesmen, distributors—will continue working toward one goal: supplying the expanding demand for quality paper products. International Paper Company, 220 East 42nd St., New York 17, New York.





Timing — so important in music, means dollars and cents in business. For perfect timing in your business correspondence, you'll find that Shepco Flavor-Seal dual postage envelopes are ideal. They enable you to send out your direct mail piece, sample, or fourth class merchandise together with your personal message at reduced postage. Your fourth class mail is assured first class attention — thus saving time and money. Your individual corner card affords immediate identification. Shepco envelopes sealed with the delicious mint flavor give the contents additional protection. Inquire today about the many features of these famous Shepco Flavor-Seal dual postage envelopes.



WORCESTER . MASSACHUSETTS

Copyright by Sheppard Envelope Company

CHOOSING AN ERASER

"Choosing an eraser" is the title of pamphlet being distributed by the Eberhard Faber Pencil Co., 37 Greenpoint Ave., Brooklyn, N. Y. Erasers come in a variety of sizes, shapes and colors, each designed for a particular job, and the pamphlet indicates the type of eraser for specific erasing jobs.

TYPEWRITER MARGIN JUSTIFIER



Margin Justifier Attached To Typewriter

Typing justifier which may be installed by any typewriter mechanic without machining or making complicated alterations to the typewriter, and which permits of aligning typewritten matter as shown below, has been introduced by the Justi-

Typewritten matter with perfectly-aligned right-hand margins is at last a reality, and can be prepared on your own typewriter, by using the recently amnounced Edison Hargin Jugiffeg. The Edison Justifier, an accessory which may be installed on all standard typewriters new in production, quickly converts any ourrent modal typewriter to a Justifying Composing Machine. Through use of this devise, typewriten matter will simulate the appearance of printed matter, the space between coch character in the line of typing being either condensed or expanded unnoticeably, bringing the lines out to a perfectly streight margin.

fier Sales Company, 2022 Glendale Boulevard, Los Angeles 26, Calif.

The company states that normal operation of the typewriter is not disturbed, and that typists quickly grasp the modus operandi. Printed matter available.

BOOK ON MILLING AND MILLING MACHINES

1 1 1

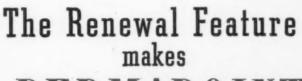
Section two of "A Treatise on Milling and Milling Machines", has been published by the Cincinnati Milling & Grinding Machines, Inc., Cincinnati, Ohio. It covers the milling process, chip formation, surface finish and cutting fluids; power required in milling; mounting of milling cutters. The book is priced at \$1.00

MAKING GEARS WITH LAMICOID

1 1 1

An informative booklet describing how to make gears with Lamicoid, a laminated phenolic plastic, has been published by the Mica Insulator Co. of Schenectady, N. Y., P. O. Box 1076. The booklet points out the way many successful applications for Lamicoid gears, which

(Please turn to page 308)



PERMAPOINT

the office pen par excellence

Bang...point first on the hard floor! Disaster? Not quite
...just time out to screw a thrifty Renewal Unit into place
and the damaged pen is as good as new—and for only
a fraction of its original cost. The entire writing portion
of the pen is replaced—in a jiffy—out of your Supply
Room stock of packaged Renewal Units... Good reason
why the No. 1401 PERMAPOINT at \$1.00 (retail) is taking
the business world by storm.

Stainless Steel Iridium tipped* Point...Pens in Black and Gleaming Colors...Company names can be clearly imprinted on barrels.

Matching mechanical pencils are also available, specify No. 1400; (retail price \$.75)

Thrifty Renewal Unit

No. 1203

Consists of Point, Feed, 3

(retail)

*Trade Name, Over 40% Platinum and Osmium Content

BBBRHARD FABER

EADERSHIP IN FINE WRITING MATERIALS SINCE 1849

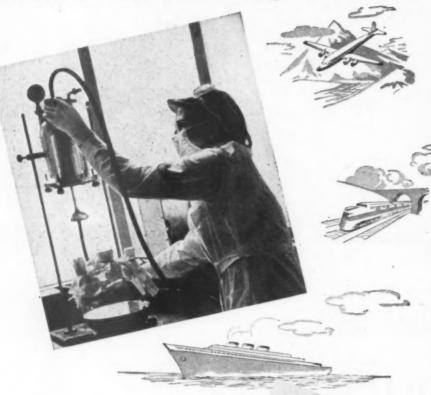
Four Widths of Point

Extra F

Medium ___

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Does your letterhead express TODAY'S PROGRESS?

From wartime necessities comes a whole new world of scientific advances. Significant of the travel age before us is Vasano, the Schering Corporation's new antidote for travel sickness by air, sea, rail, or road... and now available for civilian use.

The Schering Corporation uses a Strathmore letterhead paper to reflect progress in pharmaceutical research. Does your letterhead suggest that your company is looking ahead with the times? For your firm, too, the Strathmore watermark is an assurance of quality.

Strathmore Letterhead Papers: Strathmore Parchment, Strathmore Script, Thistlemark Bond, Alexandra Brilliant, Bay Path Bond, Strathmore Bond.

STRATHMORE MAKERS OF FINE PAPERS

Strathmore Paper Company, West Springfield, Massachusetts

(Continued from page 306)

range in size from less than one inch in pitch diameter to several feet, and are used in many applications—from air compressor to washing machines.

The booklet is designed to answer questions most often asked about Lamacoid gears, including how to fabricate them, and it further provides technical tables that give preferred pitches, torque, safe working stresses, and other practical information.

ADD-A-TRAY STEEL DESK TRAY

The Add-A-Tray, all steel desk tray, developed by the Maso Steel Products company, 418 South Clinton St., Chicago, Ill., is now being made in legal size. It



is made of heavy gauge metal, and is available in walnut, office green or gray baked enamel finished. The trays fit over each other without the use of nuts, bolts or screws, and are said to form strong rigid tiers up to ten.

WELDING PROCEDURES FOR CAST IRON ISSUED BY AMPCO

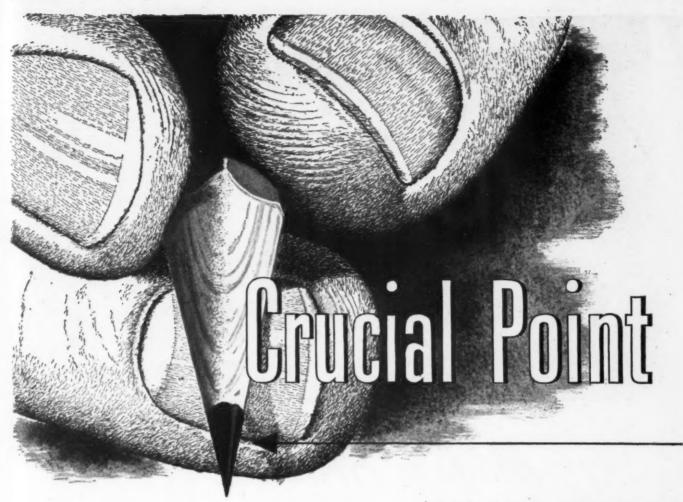
How to weld malleable iron and cast iron is fully described in two new procedure sheets recently issued by Ampco Metal, Inc., Milwaukee 4, Wis., featuring the use of Ampco-Trode coated aluminum bronze electrodes and Phos-Trode shielded arc phosphor bronze electrodes. The sheets cover the recommended electrode for each type of iron, polarity and current, recommended amperage and voltage, preparation, preheat if necessary, and the procedure necessary for successful welding with these bronze electrodes.

1 1 1 COLUMBIA CAUSTIC SODA BOOK

An elaborate 72-page text designed for use by technical men, buyers and executives interested in the economics of caustic soda, covering such subjects as characteristics, uses, forms, transportation, constants, storage, handling, and storing, is available from the Columbia Chemicals Division, Pittsburgh Plate Glass Co., Pittsburgh 13, Pa. The book, known as Form A-100, is printed in three colors, and contains wide variety of graphs, charts and diagrams, and descriptive photographs.

(Please turn to page 311)

AUT



Uarco forms offer these business advantages:

SPEED 2 to 20 copies at one writing

ACCURACY Less re-writing, fewer mistakes

EFFICIENCY Forms pre-assembled by machine rather than hand-assembled on the job

ECONOMY Clerical work reduced, errors and delays minimized

DEPARTMENTAL COORDINATION All necessary forms at a single writing

CONTROL More information transmitted with greater accuracy and speed A pencil point, yes . . . and a crucial point. For in writing out the routine forms upon which every department of your organization depends, a pencil—yes, or a typewriter—can, to a large measure, make or break the efficiency of your business.

Your UARCO representative will be glad to analyze your present form system and see if your business forms are planned to eliminate re-writing, increase clerical production, speed transmission of information, and reduce error to a minimum. Regardless of the form you use or the way you write it, a UARCO representative can improve your routine with UARCO forms that are expertly designed to fit the job. UARCO INCORPORATED, Chicago, Cleveland, Oakland. Offices in All Principal Cities.



For Instance... UARCO Multi-Fold Continuous Strip Forms are one way of improving typewritten records. They bring easy handling and loading to typewrittens, bookkeeping or billing machines. Perfectly aligned, carbon-set, and consecutively numbered, Multi-Fold Forms are folded together in packs of 500 or more sets—2 to 15 copies to the set. A typical application in which Multi-Fold Forms cut paper work to a minimum is this 3-copy billing operation Original copy for customer invoice. Second copy, a combination record for sales statistics and a posting record for the ledger. Third copy, a combination record for volume and activity of account.



AUTOGRAPHIC REGISTERS AND REGISTER FORMS

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3-

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SINGLE SET



BUSINESS FORMS





CONTINUOUS-STRIP FORMS
FOR TYPEWRITTEN AND BUSINESS MACHINE RECORDS

SPRING EDITION, 1945

PLANT PURCHASING DIRECTORY

PRODUCTION, PURCHASING AND ENGINEERING EXECUTIVES







Made to Fit

the Needs of Production,

Purchasing and Engineering Executives



These steel balls for bearings are worked to a tolerance of fifty millionths of an inch in order that they may fit perfectly the job they are called on to do.

PLANT PURCHASING DIRECTORY is carefully designed, for the specific needs of the industrial buyer. It contains only classifications he needs, omits all duplicate, all non-essential classifications. It is made up and printed to be easily read, easily handled, easily consulted. PLANT PURCHASING DIRECTORY is small enough for your desk, big enough to give you full information. Keep it handy.

PLANT PURCHASING DIRECTORY

333 North Michigan Avenue, Chicago 1, Illinois

A CONOVER-MAST
PUBLICATION

(Formerly Plant-Production Directory)

ADJUSTABLE FOCUS PHOTOCOPY CAMERA

The Dexigraph Photocopy Camera, adjustable focus, is announced by Photo Records Divn., Remington Rand Inc., 315 Fourth Ave., New York 10, N. Y. It will make full size copy of record 14" x 8½"



Fast Action Adjustable Photocopy Camera Uses Fluorescent Lighting.

or reduce it to 10" x 6". Camera is equipped with recessed copy table for use with 8" steel Kardex slides. It utilizes fluorescent lighting and operates on 110 v 60 cycle a-c. One operator can make 160 exposures and have ample time to process them within an hour, it is reported. Folder D-134-A available.

FLUORESCENT LAMP LIFE EXTENDED

A new type cathode which is expected to double the life of fluorescent lamps has been patented by the Duro Test Corp., North Bergen, N. J. Mechanics of new development consists of providing for two or more cathodes at each end of a florescent lamp and the use of a built-in switching mechanism for successively rendering the cathodes active as previously active cathodes become exhausted by the deterioration of the emission coating to a point of no further utility.

ALUMINUM DESK ACCESSORIES

Illustration shows assortment of aluminum desk accessories being marketed by Bushman Moore, Inc., 2034 E. 71st



St., Cleveland 3, Ohio. These include triple-tier letter tray, notebook holder, memo sheet holder, and guarded spindle file. The units are made of hand-buffed aluminum alloy providing a long-lasting lustrous surface. Trays are available in single, double and triple-tier sizes, and the memo sheet holders come in two standard sizes, 3 x 5, and 4 x 6.



Efficient, well-kept records of production, distribution, sales and finance are essential to every business...yet, in terms of material and preparation cost they are one of

the smallest items of operating expense. Smallest of all in the cost of keeping records is the cost of good paper...

for without good paper, records wear out, break down, grow dog-eared and dangerously inefficient.

Insure ample life and lasting efficiency for all your important records by specifying the right paper from the complete line of WESTON cotton fibre permanent record, ledger,

WESTON Quality
Paper for Records
and Correspondence
Pays Dividends in
Lasting Service
and Satisfaction

bond, index and machine accounting papers. Each WESTON paper is made to give uniform satisfaction during the service life of an important class of business records. Make it a rule to keep records worth keeping on WESTON paper.

BYRON WESTON COMPANY, Dalton, Massachusetts

Use WESTON Paper for ACCOUNTING RECORDS

Auditors' Reports Balance Sheets Bills Cash Books Credit Forms Invoices Journals Ledgers Securities Records
Tax Records
Treasurers' Reports
Trial Salances

LETTERS ARE RECORDS, TOO. Specify WESTON Bond Project for executive correspondence and letterheads that bear information worth keeping.

VESTON Makers of Papers
for Business Records





Today's economy will not tolerate less than maximum results from manpower and machines. It's look sharp, be sharp for efficiency and economy. That calls for BOSTONS at every spot that will keep the organization in sharp pencils at all times. A good point to remember. The sturdy quality and engineered precision of BOSTONS are famous. War years, when replacements were practically impossible, proved the superiority and amazing stability of BOS-TONS under excessively and continuously hard service. Back orders are being filled-America has sharper pencils than for many years.

BOSTON PENCIL SHARPENERS

C. HOWARD HUNT PEN COMPANY CAMDEN, N. J.

SPEEDBALL PENS

HUNT PENS

STANDARDS FOR ANALYTICAL FILTER PAPERS

S TANDARDS of quality for analytical filter papers, previously non-existent for this important item in chemical research and analysis, are being developed by the Paper Laboratory of the National Bureau of Standards through a critical evaluation of all currently available brands. It is believed the standards finally recommended will provide a ready means of determining the suitability of a particular paper for its intended use. Requirements will be included for the three classes of general analytical work involving coarse, medium, and fine precipitates.

Analytical filter papers, like many other laboratory materials, have an importance to science and industry far in excess of their dollar value. Many industrial processes require quick, accurate analysis for their control and these depend, in many cases, on the speed, retentiveness, and purity of the filter paper used.

Filter papers have been used and bought by brand names, practically as a tradition among laboratory workers, and preference has usually been given to imported papers, most of which have come from England, Germany, and Sweden. When the war made supplies from these sources uncertain, American manufacturers began production of grades of analytical papers that had not previously been made in this country. In order to provide data that would be useful as a guide to manufacturers and users in comparing the quality of different papers, as well as to eliminate dependence on brand names, the Bureau undertook an investigation of the physical and chemical properties of the papers.

Improved methods were developed for determination of rate of flow of water through the papers, retention of fine precipitates, and ash contents, as well as a method for measuring the bursting strength of wet paper. Density, purity of cellulose, and acidity, for which definite testing procedures were already available, are also important determinations.

The method for rate of flow of water is of special interest. Unique in that it does not require the use of special, complicated apparatus, it possesses the advantage of simulating the manner in which filtrations are made. The filter paper is folded in a cone in the usual way, taking care to expel air pockets. Instead of placing in a funnel, however, the cone is suspended freely in a wire loop, thus eliminating the variables such as design, angle, and stem dimensions of the funnel. It was found necessary to prefilter the water used in the test, but when this was done, highly reproducible results were obtained.

The investigation was also extended to include a study of "shelf life" of filter papers. It was found that some papers not only became brittle with age, but that decomposition products were formed that might contaminate the solutions being filtered. An accelerated aging test previously developed for paper generally enabled a satisfactory prediction of stability to be made.

This work has shown significant differences among filter papers which, if studied critically, may point the way to future improvements. For example, some papers of equal retentiveness differ in speed, and hence may yield a clue as to how faster papers may be made.

Measurements of the quality of three foreign and two domestic brands of analytical filter paper have shown that the American-made papers are fully equal to the imported papers. It is anticipated that the application of quality standards based on quantitative measurements will eliminate traditional buying practices and permit free competition among all suppliers.

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Look at the Sundstrand keyboard. There are only 10 figuring keys, arranged in natural sequence under the finger tips of one hand. That's the world's fastest keyboard!

It's also the easiest to learn. Even untrained personnel can operate by the "touch" method after a few minutes' practice . . . pick up speed in a few hours. This means you get your figure facts FAST.

And, with speed comes accuracy. The operator's eyes are always on her work. Her left hand is free to follow data or turn pages. Hence, there is no tiring headswing.

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Preferred today by every type of industry . . . from railroads to retail stores . . . from banks to big utilities. If you want to improve the efficiency of your figure workers, call your nearest Underwood representative and ask for a demonstration of an Underwood Sundstrand Adding-Figuring Machine . . . TODAY.

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PERSONALITIES in the NEWS

J. S. Armstrong, General Purchasing Agent of the Cudahy Packing Co., Chicago, Ill., was elected a vice-president of



J. S. Armstrong

the company at a recent directors' meeting. Mr. Armstrong has been with the company since 1920 when he joined the purchasing department, and has been general purchasing agent since January 1946.

Charles T. Blake has been named Director of Purchasing for Warner & Swasey Co., Cleveland, Ohio, succeeding John C. Kline, retired. Mr. Blake has been with the company for 11 years and engaged in purchasing since 1939. He became assistant to Mr. Kline, then director of purchasing in 1943, and served in that capacity until his present appointment. He graduated from Cornell University with a M. S. degree in 1935.

Angelo La France has been appointed General Purchasing Agent of Strong, Cobb and Company, Cleveland, Ohio., pharmaceutical manufacturers. Previously he served as purchasing agent and before that as chief estimator.

Jerry F. Kofton has been named Purchasing Agent of the Reese Paper & Twine Co., Cleveland, Ohio. Before joining this company he served as purchasing agent of the Central Ohio Paper Co.

Wolter Conklin has become Purchasing Agent for Alexandra de Markoff, New York, N. Y., facial preparations. Formerly he was associated with Evans Chemetics, also of New York.

Clifton E. Mack, Director, Federal Bureau of Supply, Treasury Department, Washington, D. C., discussed the organization of the Bureau and its activities in Federal Procurement, at a recent meeting of the National Conference of Business Paper Editors held in Washington.

Robert R. Nosh has been named director of the recently organized Purchase Analysis department in the Ford Motor Company's Purchasing Division, according to an announcement by Albert J. Browning, Ford vice-president and director of purchasing. During the war Mr. Nash was manager of military contracts, Treasurer's division, Remington Rand Arms Co. He is a graduate of Lafayette College and the Harvard University Graduate School of Business Administration.

Roy L. Johnson has been elected Director of Personnel and Purchases of the National Life Insurance Co., Montpelier, Vt. He has been with the company for ten years as Purchasing Agent, and since 1943 as Superintendent of Supplies. Prior to World War I he attended Dartmouth College and Massachusetts Institute of Technology.

Henry G. Mohoney has been appointed Manager of Purchasing for the Lighting Fixture division, Sylvania Electric Prod-



Henry G. Mahoney

ucts, Inc., New York, N. Y. He joined Sylvania in 1943 as assistant purchasing agent in the Appliance division, and later became purchasing agent in the Lighting Fixture division.

Mox C. Jordon has been appointed Purchasing Agent of Machinery Sales & Supply Co., Dallas, Texas. He graduated from Texas A & M College in 1942 with a BS degree in electrical engineering prior to serving four years with the Army Signal Corps where he attained the rank of Major. For the past year he has been connected with the company's sales department.

Alfred H. Good, General Purchasing Agent, Metropolitan Life Insurance Co., of New York, N. Y. has been appointed Assistant Vice-President-Purchasing. C. G. Ingroham has been appointed General Purchasing Agent of the General American Transportation Corp., Chicago, Ill. W. O. Graham has been appointed General Purchasing Agent for the aerocoach division. Duone J. Hicks has been named Purchasing Agent of the corporation; and W. G. Fredericks has become Purchasing Agent of the plastics division.

H. R. Cunningham has been named Purchasing Agent for National Instrument Corp., Houston, Texas, succeeding Dalton B. Chapman who has become sales manager. Prior to his appointment he had been in sales work in Houston and before that he served as requirement engineer in connection with the atomic bomb activities of the Tennessee Eastman Corp.

R. J. White, formerly Purchasing Agent at Calgary for the Canadian Pacific Railroad, has been named Steamship Purchasing Agent at Montreal, succeeding Guy Sandilands. T. A. Donovan, formerly Purchasing Agent at Toronto, is now Purchasing Agent at Calgary. R. H. Yarnell, formerly Purchasing Agent at Montreal succeeds Mr. Donovan in Toronto.

Rolph LiBeou has been named General Purchasing Agent of The Bassick Company, a division of Stewart-Warner Corporation, Bridgeport, Conn., manufacturers of casters, automotive hardware and powdered metals parts. Mr. LiBeau joined the company in August 1945 as sales manager of the Automotive and Specialty Hardware Division. He served in that capacity until his transfer and promotion as General Purchasing Agent. During the war he was with North American Aviation, Inc., of Kansas,

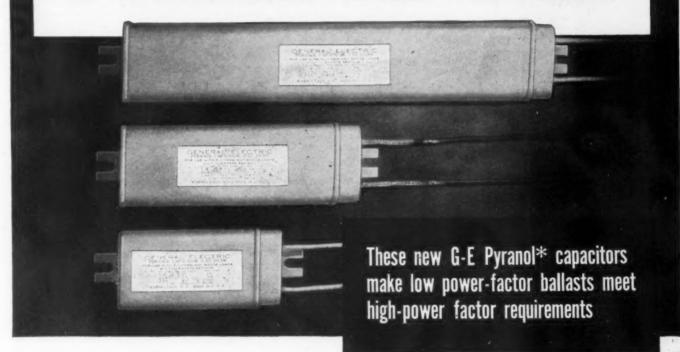


Ralph LiBeau

where he directed procurement of capital equipment and served in an engineering capacity on internal capital production facilities.

(Please turn to page 316)

need POWER-FACTOR IMPROVEMENT for FLUORESCENT LAMP FIXTURES?



If your present supply of high-power-factor ballasts is inadequate for your high-power-factor fixture requirements, use the new G-E Type FL capacitors.

These new Type FL capacitors**, when simply installed in the fixture with available ballasts, bring low-power-factor equipment up to acceptable power-factor levels.

The size and weight of these new capacitors permit easy assembly in new or existing fixtures. A short shipping schedule on Type FL capacitors make them available for current fixture business—now—when you need them.

These hermetically sealed Pyranol impregnated units, featuring new low cost as well as small, light-weight design, offer the same high quality as millions of G-E capacitors now used in fluorescent installations.

Three designs are available for operation at 50 or 60 cycles, 118, 208 or 236 volts a-c, and when used individually, or in combinations as suggested, provide a minimum of 85 to 95 percent power factor for a single 15-watt lamp, or up to four 40-watt lamps. For further details, write to Apparatus Department, General Electric Company, Schenectady 5, N. Y.

**Listed by Underwriters' Laboratories, Inc.



Pyranol is General Electric's registered trade name for a noninflammable liquid dielectric for capacitors.

DATA FOR 60 CYCLE, 118 VOLTS A-C

Lamp Size Watts	Lamp	Approx.	2 Lamps	Approx.	3 Lamps	Approx.	4 Lamps	Approx.
15-T-8	S	95	M	86	L	95+	L	86
15-T-12	S	86	S& M*	95+	L	88	5 & L*	87
20-T-12	S	90	M	85	M & L*	91	· L	85
30-T-8	M	85	L	85	M & L*	86	L&L*	86
40-T-12	M	86	L	86	M & L*	86	L&L*	86

Symbols: S-Cat. No. 21F296; M-Cat. No. 21F297; L-Cat. No. 21F298

*Two capacitors in parallel

VOLT-AMPERE RATINGS

Volts A-C	21F	296	211	F297	21F298		
Volla A-G	50 Cycle	60 Cycle	50 Cycle	60 Cycle	50 Cycle	60 Cycle	
118	21	25	33	39	. 66	78	
208	65	78	102	123	204	245	
236	83	100	131	157	262	314	



(Continued from page 314)

B. M. Horter has been named Director of Purchases for Cutler-Hammer, Inc., Milwaukee, Wis. He formerly served as



B. M. Horter

purchasing agent for the company's Milwaukee factory. In his new capacity he will be in charge of purchasing for all the company's plants.

Horace Balding, Purchasing Agent, Braniff International Airways, has been promoted to head the airline's new purchasing department at Dallas, Texas. The new purchasing and inventory control department, with a staff of twentyfive people, was formerly a division of the operations department. Bill Lowson, in charge of domestic operations purchases, and Cecil Moore, in charge of Latin American operations purchases, are the two assistant purchasing agents in the new department. Mr. Bolding has been asso-ciated with Braniff since 1934 when he became secretary to the superintendent of maintenance at Dallas. In 1940 he became chief storekeeper and was appointed purchasing agent in 1945.

Rolph F. Weist, formerly assistant purchasing agent, Rheem Mfg. Co., Houston, Texas, has been appointed Purchasing Agent, succeeding E. D. Anderson, resigned. He has been with the company for the past two years, having served previously with Brown & Root, Corpus Christi, and McAlester, Okla., in a purchasing capacity.

Albert J. Browning, Vice President and, Director of Purchases, of the Ford Motor Company, delivered an address on "Marketing's Postwar Challenge and the Industrial Purchasing Agent", before the National Marketing Conference of the U. S. Chamber of Commerce in Chicago on the 10th of March.

Roland M. Brennan, Purchasing Officer, District of Columbia, is spending his spare time on week-ends collecting material on the city government from 1910 to date with the idea of writing a history of that period. Prior to becoming purchasing officer he served as secretary to the Commissioners.

G. E. Lott has been appointed Director of Purchases of the Motor Products Corp., Detroit, Mich. He will be assisted by George G. Steelman, Purchasing Agent.

Frank John has been appointed Assistant to the President and Director of Purchases of the Mid-Continental Supply Co., with general offices in Fort Worth, Texas. He has been with the company since 1931 when he started as store manager at Kilgore, Texas. In 1933 he was transferred to Fort Worth as Purchasing Agent.

Dovid M. Meeker, has assumed the position of Resident Purchasing Agent for the Paraffine Companies, Inc. of San Francisco, Calif., with headquarters at 295 Fifth Avenue, New York. Previously he was Purchasing Agent for Revlon Products Corp., New York.

Clorence J. Cukr has been appointed Purchasing Agent of the Johnston & Jennings Co., Cleveland, Ohio., replacing George Stellman, resigned. Previously he was associated with the Cleveland Automatic Machine Co., where he served as Purchasing Agent.

Henry M. Wogisch has been named Purchasing Agent for L. Sonneborn Sons, Inc., New York, oil refiners and manufacturing chemists. Mr. Wogisch thus formally assumes complete charge of the company's purchasing department which he had actively headed during the illness of his predecessor, the late F. W. Werner.



H. M. Wogisch

Mr. Wogisch has been associated with Sonneborn since 1919 and formerly had specialized in the purchase of containers for all divisions of the company as well as basic fats and oils and other raw materials for the company's refineries at Petrolia and Franklin, Pa., and the plant at Nutley, N. J.

W. C. Hoyes has been appointed Purchasing Agent for the Otto K. Oelsen Co., Hollywood, Calif., manufacturers of sound and lighting equipment.

William E. Sipe has been appointed Purchasing Agent for the Southwestern Portland Cement Co., Osborn, Ohio, succeeding William Huppman, deceased. Mr. Sipe formerly served in the capacity of assistant purchasing agent.

George T. Deaney has become Purchasing Agent for the Weston Electrical Instrument Corp., Newark, N. J. He succeeds A. R. Briggs who has retired.

Roymond A. McGroth has been appointed Purchasing Agent for the Arvey Corporation, Jersey City, New Jersey. W. T. Strotton has been appointed Director of Purchases of the Wickwire Spencer Steel division of the Colorado Fuel and Iron Corp., New York, N. Y., and will be located at the Curtiss Building, 361 Delaware Ave., Buffalo, N. Y. He has been active in purchasing and traffic departments in the steel industry for 28 years, having started with the United Alloy Steel Corp., Canton, Ohio, in 1916. In 1929 United Alloy Steel Corp. was merged with Republic Steel Corp., and he remained with Republic until 1944 when he joined the Valley Camp Coal Co., as district manager at Cincinnati, Ohio. In his present capacity he succeeds E. A. Johnston, resigned.

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E. P. Bush has become Purchasing Agent for the Southern Line Material Co., Birmingham, Ala., succeeding James H. Williams who has been transferred to the company's home office in East Stroudsburgh, Pa.

L. C. Foster has become Purchasing Agent of the Marson Mfg. Co., Birmingham, Ala., succeeding J. C. Smith, resigned.

Glen Modden has been named General Purchasing Agent for the Tucker Corp., Chicago, Ill. Formerly he served as purchasing agent of the Briggs Mfg. Co., Detroit, Mich.

Charles M. Healey, Jr., has been re-appointed Purchasing Agent for the city of Springfield, Mass., to serve for another six-year term. He entered the city's engineering department twenty years ago, becoming Deputy Purchasing Agent when the purchasing department was established in 1940 and Purchasing Agent in 1941.

More W. Loibe has been named Assistant Purchasing Agent for the Goodyear Tire & Rubber Co., Akron, Ohio. Mr. Laibe has been associated with the purchasing department at Goodyear since his graduation from Ohio State College in 1925. In 1932 he became a buyer of engineering supplies later entering retail store buying which he continued until the war when he was transferred to Goodyear Aircraft as assistant purchasing



Marc W. Laibe

agent. He returned to the parent company in 1945 to be in charge of fabric purchasing, a position which he has held until his present promotion.

(Please turn to page 318)

Piping jobs move faster when all materials are CRANE

OF SUPPLY

You save time on piping specifications! You save time in ordering materials! You save on installation time! Standardizing on Crane equipment does all that-and more-for you.

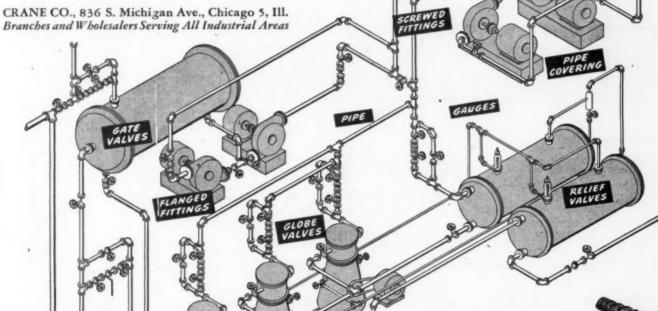
Take this air conditioning system, for example. Everything in piping for the installation is in the Crane line. Good, dependable materials down to the last item. From design to erection to maintenance, an all-Crane job moves faster-with better performance assured by this 3-way advantage-

> ONE SOURCE OF SUPPLY gives you the world's most complete selection of valves, fittings, pipe, accessories and fabricated piping for all power, process, and general services.

ONE RESPONSIBILITY for piping materials helps you to get the best installation and to avoid needless delays on jobs.

OUTSTANDING QUALITY in every item assures uniformly high performance in every part of piping systems.

CRANE CO., 836 S. Michigan Ave., Chicago 5, Ill.



sures up to 150 lb. steam, 300 lb. cold. Designed to handle severe working conditions requiring a beavier than Standard valve on steam, water, oil, gas and other general services. Wedge disc; Chilled water air conditioning system rising stem. In 10 sizes to 3 in. See your Crane Catalog, page 19.

EVERYTHING FROM ...

VALVES • FITTINGS PIPE . PLUMBING AND HEATING

CRA

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(Right) FOR WIDER STANDARDIZA-TION of Brass Gate Valves, Crane recommends the No. 431 for pres-

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If your approach to it is along scientific lines, you will wish to contact and use the services of our Creative Design Dep.

Information on the right type of package, its advantages in design — in construction — in low costs — in permanency, etc., will be quickly furnished for your consideration.

The Cleveland Container Company, with over twenty years of experience in this field, merits your inquiries . . gives quick and intelligent service in furnishing the data you desire.

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Quality Products . . rightly priced . . rapidly produced. May we serve you?

Take Advantage

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PLASTICS DIVISIONS at Plymouth, Wisc., Ogdensburg, N. Y. * ABRASIVE DIVISION at Cleveland, Ohio
New York Sales Office—1186 Broadway, Room 223
IN CANADA—The Cleveland Container Canado Ltd., Prescott, Ontario

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Plus freely available advice to help you set up cleaning methods tailored to your needs . . . worked out to help you keep per-unit

Just ask your nearby Oakite Technical Service Representative to stop by and study your cleaning problems. He'll bring you the benefit of Oakite's nigh on 40 years' experience in every phase of industrial cleaning and surface conditioning. That means he'll review your cleaning cycles and, if necessary, suggest procedures (designed around made-for-the-job Oakite detergents) sure to give you the precise degree of cleanliness required for profitable, quality production.

Be it cleaning bottles or bolts, Diesels or derricks, chances are the Oakite Man can help you put this work on a low-cost, efficient basis. Write to him at Oakite Products, Inc., 54 Thames St., New York 6, N. Y.

OAKITE

SPECIALIZED CLEANING MATERIALS . METHODS . SERVICE

Technical Representatives in Principal Cities of U.S. & Canada

(Continued from page 316)

Edward E. Estes has been named State Purchasing Agent for the state of Alabama, succeeding Howard Williams who has become Assistant Director for Purchasing of the State Highway Department. Horry N. Bender has been named Assistant Purchasing Agent. A. M. McNeel who has been in the state purchasing department for eight years as an assistant purchasing agent will also continue as such.

Roland Whitney, Secretary of the Louisville Cement Co., Louisville, Ky., has been named an industry member of the Louisville Labor-Management Committee. Mr. Whitney started as a clerk with the cement company 25 years ago and served as purchasing agent for 14 years.

Corobell Condy, Purchasing Agent at the Indiana University Medical Center for the past seven years, has been appointed assistant to the administrator of the center. James R. Neel succeeds Miss Candy as purchasing agent. Since 1945 he has been serving as assistant purchasing agent of the University's Bloomington campus.

Arthur B. McWood, for the last five years state price executive of OPA in Michigan, has been appointed Purchasing Commissioner for the city of Detroit by Mayor Jeffries. Mr. McWood succeeds Ernest Jones who has been named Commissioner of Public Works.

Howard Williams, formerly State Purchasing Agent, for the State of Alabama, has been transferred to the Highway Department where he will serve as Assistant Director for Purchasing.

George Bosworth, City Purchasing Agent, New Orleans, La., recently announced that his department is now making centralized purchases for 67 departments of the city government, and that only five departments remain to be taken into the centralized purchasing plan.

J. B. Lightburn succeeds Leslie E. Welch as Purchasing Agent for Purolator Products, Inc., Newark, N. J.

A. W. Roob has been named General Purchasing Agent for the Lone Star Cement Corporation, New York, N. Y., succeeding H. E. Kerby, retired. J. T. Gordon has been made Assistant General Purchasing Agent.

R. W. McCormick has been named Purchasing Agent, Tubular Rivet and Stud Co., Wollaston, Mass., succeeding Philip V. Bray who has become assistant to the president and works manager.

Carl Borg, formerly assistant Purchasing Agent, Tuttle & Bailey, Inc., New Britain, Conn., has been appointed Purchasing Agent, succeeding R. C. Twitchell who continues as treasurer.

(Please turn to page 321)

RECOGNIZED BY REPUTATION...

WEIRIGA

Wild In Michael Strip and Strip and Strip well Alloy Coaled Sheets and Strip and Special Coaled Manufacturing Ternes

Soring Steels Cold Rolled Sheets and Strip and Special Coaled Manufacturing Ternes

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WEIRTON STEEL CO.

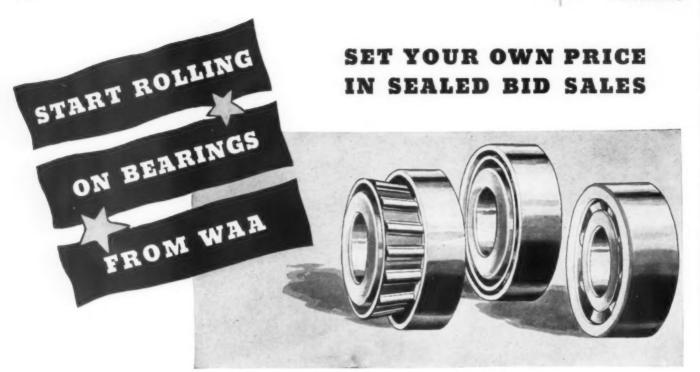
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Division of NATIONAL STEEL CORPORATION

Executive Offices, Pittsburgh, Pa.

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Get your bearings from the \$20,000,000 stock now being sold by WAA. Friction and anti-friction bearings and components in all sizes and types are included in this stock. Many sizes are available in production-run quantities. Set your own price on what you need and submit your bid. Get all pertinent information from your nearest WAA Regional Office—go there to make your own inspection.

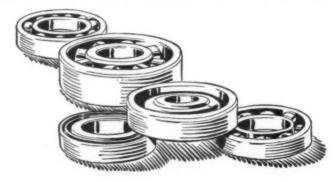
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Sales of bearings will be held at frequent intervals. To receive information on future sales, write, wire or phone the Regional Offices listed below asking that your name be placed on their mailing lists.

BOSTON - CINCINNATI - CHICAGO - ST. LOUIS
CLEVELAND - LOS ANGELES - NEW YORK



(Continued from page 318)

Ben Feingold has been named Assistant Manager and Buyer for George Birkenstein & Co. of Chicago. He had previously been Assistant Purchasing Agent for the Federated Metals Division in Whiting, Ind.

O. B. Steele, Purchasing Agent, Gulf States Utilities Co., Baton Rouge, La., spoke on the subject "Viewing the Salesman Across the Desk from the Purchasing Agent" at a recent meeting of the Sales Managers' Club of Baton Rouge.

Edward Van Nierop has become Purchasing Agent for the Shepard Steamship Co., New York, N. Y. succeeding W. H. Cornelius.

R. H. Morkowitz has succeeded George F. Gleeson as Purchasing Agent for the John Waldron Corp., New Brunswick, N. J.

R. F. Holley has succeeded T. G. Gerber as Purchasing Agent of the Premier Metal Etching Co., Long Island City, N. Y.

Francis G. Allan, Purchasing Agent for the Elliott Electric Co., Cleveland, Ohio, has been elected Vice President in charge of Purchasing of the company. Within three years after joining the company in 1922 he became purchasing agent and has continued in that capacity until his recent promotion.

C. Rolph Willson, Purchasing Agent for the C. O. Bartlett & Snow Co., Cleveland, Ohio, has been elected to the board of directors of the company. He has been associated with the company since 1908, and active in purchasing for all but six months of the time.

CORRECTION

E. W. Monn, Purchasing Agent of the Bird Machine Company, South Walpole, Mass., was elected to the board of directors of the New England Purchasing Agents Association, and not the Bird Machine Company, as intimated by a notice in this column in the March issue of Purchasing.

AMONG THE COMPANIES YOU BUY FROM

Omoho, Neb.—Ford Motor Co., Dearborn, Mich., J. H. McDonald has been appointed manager and Clark W. Neiman as assistant manager of the company's Omaha sales district.

Pittsfield, Moss.—General Electric Co., Chemical department, Compound and Plastics division. J. Rae Stirrat has been named sales manager for the Compound division and Nathan A. Freuden sales manager for the Plastics division.

(Please turn to page 322)



Careful planning by Rapids-Standard Engineers to make full use of the right

combination of material handling equipment best suited to your own particular application will pay off in DEcreased costs and INcreased production. A conveyor system consisting of Rapid-Wheel Gravity Conveyors, Stevedore, Jr. Power Belt Conveyors and a Floor-Veyor was recommended by these engineers as a means of solving a complex handling problem at the McMahan & Leib Co., Anderson, Indiana. This system carries packaged goods from the loading dock to any part of a second story warehouse without man-handling . . . eliminating all overtime and demurrage costs.

Call on these handling experts and you, too, can capitalize three ways on the three conveyors shown below:

RAPID-WHEEL* CONVEYOR

Carries your packaged material by the free force of gravity. It fits readily in narrow aisles and crowded warehouses. Quickly adjustable, and easily portable. Standard lengths 5' and 10'.



2 STEVEDORE, JR.*

A portable Power Belt Conveyor that is easily rolled to the job to save hours of man-handling in loading, unloading, stacking and elevating operations. Quickly adjustable . . . from 18" level to delivery height of 72".



Permanently installed to provide a convenient method of moving cartons, cases, bags and boxes from one floor to another. It is the only unit of its type manufactured complete, ready for easy installation.



*Trademark Registered

We'll answer promptly any request for details—even a postal card.



The Rapids-Standard Co., Inc.

Sales Division - 379 Peoples National Bank Bldg., Grand Rapids 2, Michigan



The Machlett Dynamax "25" unit for diagnostic work represents the highest development of the rotating anode principle whereby the loading capacity of an X-Ray tube is greatly increased.

The motor control equipment houses a Haydon 1600 series timing motor featuring the patented magnetically operated, counter-balanced gear shift and is employed in connection with the Dynamax Motor control circuit. It provides accurate time delay between energizing motor and exposure while preventing exposure in the event connections to motor are broken or reversed.

This Haydon application story is but one of many in diversified industry . . . each playing an important part in assuring accurate and dependable timing for greater operating efficiency. It it's about time . . . consult Haydon engineers. Free catalog available on request.

Write HAYDON, 2200 Forest Street, Forestville, Connecticut



MANUFACTURING COMPANY, INC.

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CONNECTICUT

IME TO YOUR PRODU

SUBSIDIARY OF GENERAL TIME INSTRUMENTS CORPORATION

(Continued from page 321)

Meriden, Conn. - Charles Parker Co. Parker B. Allen, president of the company, has been appointed to the addi-



Parker B. Allen

tional post of general sales manager. He has been president of the company since returning from two years' overseas with the Army Air Forces in 1946.

Cudohy, Wis.—The Ladish Drop Forge Co., has changed its name to Ladish Co.

Chicogo, III.—Joseph T. Ryerson & Son, Inc. Charles S. Hegel has been appointed manager of the Stainless Steel division



C. S. Hegel and J. W. Queen

and John W. Queen has been appointed manager of the Alloy Steel division, according to an announcement by Everett D. Graff, president.

Cincinnuti, Ohio—Kennametal Inc., Latrobe, Pa., has appointed Leo J. Perrette as a representative with headquarters at 2162 Gilbert Ave.

New York, N. Y.—Jenkins Bros. C. C. Chamberlain, general sales manager, and James L. Dunn, vice-president in charge



C. C. Chamberlain

of industrial relations, have been elected to the board of directors of the company.

(Please turn to page 324)

STANDARD LYON PRODUCTS

You furnish the steel...

Here are two ways Lyon's modern sheet steel fabricating facilities and ample skilled manpower have helped many companies—and can help you if you have steel on hand, or available.

- 1. To complete your plant expansion or conversion program, we will accept your sheet steel (12 to 24 gauge and certain sizes of band steel) and supply you pound for pound with any selection of "Lyon Standard Products" currently in production, a few of which are: Steel Shelving, Lockers, Gravity Conveyors, Shop Equipment, Kitchen Cabinets, and Filing Cabinets.
- 2. We will manufacture to yourspecifications: Assemblies, Sub-Assemblies or Parts, in gauges No. 8 and lighter up to No. 30, in Lyon production run quantities.

Get in touch with your Lyon dealer or closest Lyon District Office.





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GRAVITY CONVEYORS

CONTRACT PRODUCTION OF SHEET STEEL ITEMS



ELECTRICAL CONTROL UNITS



HOME APPLIANCE STANDS







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...keeps MEN in motion

Stagnating production frequently is the result of stagnant air. You'll find daily output of your factory, office or mill benefited when you provide workers with fresh, clean, invigorating air. Moreover, you'll likely find the cost of Emerson-Electric exhaust fans repaid by improved Employee Relations. In the interest of quality production and greater plant harmony, get full information on Emerson-Electric fans at once. Survey your buildings and write direct to us or consult your local Emerson-Electric dealer to suggest the most efficient and economical Emerson-Electric exhaust equipment for your particular air-moving job.

Move up to 16,700 C. F. M. with EMERSON-ELECTRIC BELT-DRIVE EXHAUST FANS

Powered by specially-engineered Emerson-Electric motors, these sturdy fans have an efficient type of blade, rigidly assembled and carefully balanced to minimize vibration and assure quiet operation. Fan-shaft bearings have lubricating capacity sufficient for 2,000 hours' operation. Made in 48-in., 42-in., and 36-in. sizes.





An EMERSON-ELECTRIC FAN for EVERY Air-moving Job

Emerson-Electric Direct-Drive exhaust fans are available in five sizes from 12 to 30-in., in both ball-bearing and sleeve-bearing types. Motors are fully enclosed. Overlapping-blade assembly insures unusually quiet operation.

Send for FREE EXHAUST FAN PRODUCTS BULLETIN

Especially prepared as helpful guide to busy executives interested in plant improvement. Contains full product information, specifications and reference material for plant engineers. Shows typical installations in foundries, machine shops, lofts, show rooms, stores, etc. Send for your copy of catalog No. 417 today.

THE EMERSON ELECTRIC MANUFACTURING CO. • ST. LOUIS 21, MO. Branches: New York • Chicago • Detroit • Los Angeles • Davenport





(Continued from page 322)

St. Louis, Mo.—Bemis Bro. Bag Co., announces the election of R. D. McAusland to vice president of the company. He has been a director of the company



R. D. McAuslan

since 1936 and was appointed Pacific Coast general manager in 1941, a position which he still holds with offices in Seattle.

Bultimore, Md.—Anchor Post Products, Inc. Harvey S. Plummer, formerly of Service Station Equipment Co., has been named sales manager of the Fluid Heat Automotive and Marine Heater division.

New York, N. Y.—Heyden Chemical Corp. Vincent R. Rebak has joined the company's sales organization, covering upper New York State and Cleveland and Akron, Ohio.

Minneapolis, Minn.—Minneapolis-Honey-well Regulator Co. L. M. Morley, vice president in charge of sales for the Brown Instrument Co., Honeywell subsidiary at Philadelphia, has been elected a vice president of the parent company in Minneapolis.

Philadelphia, Pa.—Brown Instrument Co. has appointed R. B. Lundy as sales engineer for the Northern Wisconsin and Upper Peninsular of Michigan paper and pulp industry territory.

Chicogo, III.—Asbestos Products division, Raybestos-Manhattan, Inc. George W. Marshall, Jr., has been appointed general sales manager. He continues as general manager of the Asbestos Textile and



George W. Marshall

Packing division and the Equipment Sales division, and will make his headquarters at the corporation's Chicago offices at 445 Lake Shore Drive.

(Please turn to page 326)

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BRANCH OFFICES: 1350 Columbia Road, Boston 27, Mass.; 127 S. Green St., Chicago 7, Ill.; 416 W. Eighth St., Los Angeles 14, Calif.; 228 First St., San Francisco 5, Calif.; 311 S. W. First Avenue, Portland 4, Ore.; 31 W. Trent Avenue, Spokane 8, Washington. Canadian Factory: 595 St. Remi St., Montreal 30, Que.

HEAVY TRAFFIC FLOORS!

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Here's hard-to-beat economy! Rubberlike, the modern composition floor runner with rugged corrugations protects all heavy traffic areas for less than 6c per square foot! Widely used in factories, offices, schools, hotels, cafes, institutions, it quiets footsteps — makes slippery floors safe. Skidproof even when wet. Easy to clean, Rubberlike runner needs no special upkeep, can be put down without cementing. Won't curl at edges. Amazingly durable — and doubly desirable because of its "petty-cash"



cost! In rolls, 27 in. by 100 ft. or 36 in. by 75 ft. Order from supply house or write for sample. Bird & Son, inc., 181 Washington Street, East Walpole, Mass.

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60 YEARS
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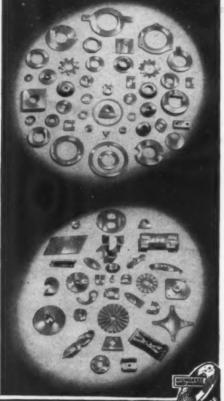
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OF EVERY DESCRIPTION FOR EVERY PURPOSE... UTILIZING MORE THAN 22,000 SETS OF DIES

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THE WORLD'S LARGEST PRODUCER OF WASHERS
2113 SOUTH BAY STREET . MILWAUKEE 7. WISCONSIN

(Continued from page 324)

Boston, Mass. — Wheeler Reflector Co. announces the appointment of Lynn W. Ferguson as sales manager, with head-quarters in Boston. Mr. Ferguson has been associated with Wheeler since 1930 when he was appointed general manager of the Wheeler Reflector Co. of Canada, Ltd.

Jersey City, N. J.—Air Reduction Sales Co., New York, N. Y. announces the appointment of the Garden State Welding Supply Co., 401-403 Montgomery St., as authorized dealer in Airco products.

Akron, Ohio—Goodyear Aircraft Corp. H. Webster Crum has been named sales manager, succeeding T. A. Knowles who has become vice president and general



H. Webster Crum

manager. Mr. Crum was formerly assistant sales manager and before that manager of the new products division.

Pittsburgh, Pa.—Koppers Co., Inc. Peter V. Martin has been appointed sales manager of the Metallurgical department, Engineering and Construction division.

Los Angeles, Colif.—Fairbanks, Morse & Co., Chicago, Ill. John A. Cuneo has been named manager of the company's Los Angeles branch, succeeding Harry W. Brown, retired. Mr. Cuneo has been with the company since 1929 and has served in the export division, the scale division in Chicago, and recently has been organizing the Fairbanks-Morse de Mexico, in Mexico City.

Dollos, Texas—Chase Bag Co., Chicago, Ill. J. B. Trigg, formerly representing the Portland, Oregon, branch, has been transferred to the Dallas sales office, from where he will cover the Dallas—Fort Worth area for the company.

Clevelond, Ohio—Pittsburgh Plate Glass Co., Pittsburgh, Pa. Martin G. Levens has been appointed Cleveland sales representative for the company's Columbia Chemical division.

Long Island City, N. Y.—Waldes Kohinoor, Inc. Harold F. Bower, formerly in charge of the Truarc Technical Service Staff, has been named sales manager, Truarc Retaining Rings division.

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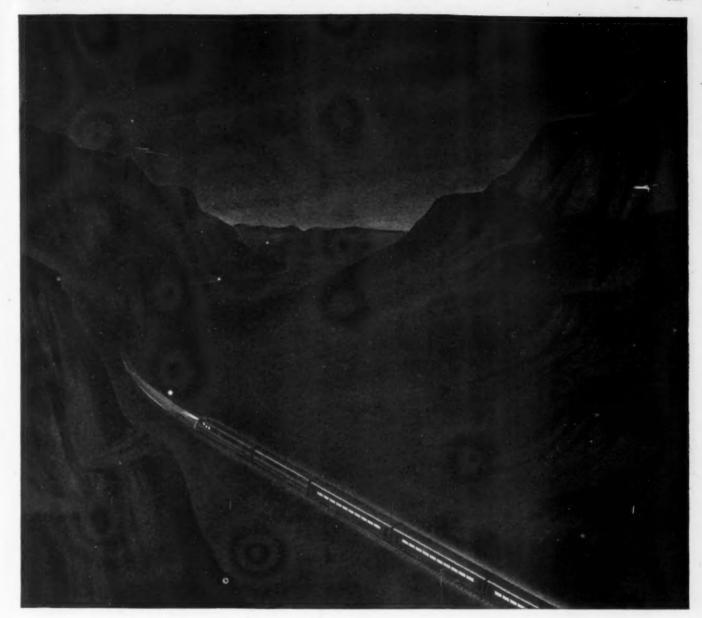
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GUIDE LIGHTS ON THE STEEL HIGHWAYS

Lights, white and colored . . . in countless numbers . . . glow night and day along the steel highways of America's great railroads. They are the visible part of marvelous signal systems that make railway travel safer than walking along a city street. The power that assures these signal lights is supplied by electric storage batteries, a large percentage of which are Exides.

Exides also furnish power for railroad car lighting, air-conditioning, train telephones and other modern conveniences . . . for there are Exides for every storage battery need.

Exide Batteries furnish motive power for efficient, time-saving electric industrial trucks and mine haulage units. They are used by public utilities; telephone and telegraph companies, radio stations; on airplanes and marine craft. They supply power for



Diesel engine cranking, fire alarm systems, emergency lighting. And in millions of cars, trucks and buses, they continue to prove that "When it's an Exide, you start."

For 59 years the name Exide has stood for dependability, economy, safety and long-life. Information regarding the application of storage batteries for any business is available upon request.

THE ELECTRIC STORAGE BATTERY COMPANY
Philadelphia 32
Exide Batteries of Canada, Limited, Toronto





DISINFECTANT - DEODORANT



Kills many putrefactive bacteria which cause disgusting odors...

Replaces disagreeable smells with fresh, pleasant tang of eucalyptus.

Use F & E in and around toilets, urinals; for flushing garbage receptacles, commodes; for washing down dressing room benches...wherever thorough, effective deodorizing is imperative.

Write for folder FE-F745 today.

F & E SOLUTION

The C. B. DOLGE CO. CONNECTION

(Continued from page 326)

Chicogo, Ill.—Acme Steel Co. C. J. Sharp, formerly vice-president, director of sales, has been elected to the newly created post of executive vice-president. Sales administration of the company's entire line has been divided into two groups, consumer products and producer products. John E. Ott has been named general manager, consumer products, and Allen B. Wilson, general manager, producer products. Guy T. Avery, formerly works manager, Riverdale plant, has been elected vice-president and manager of production, all plants. B. Richards has been named assistant to vice-president and manager of production.

Chicago, III.—Inland Steel Co. Neele E. Stearns has been appointed assistant general manager of sales. Formerly he



Neele E. Stearns

was manager of the business procedures department.

Cincinnati, Ohio—Cellulose Products dept., Hercules Powder Co., Wilmington, Del., has opened an office in the Carew Tower for the sale of cellulose chemicals. Henry Grace, formerly in charge of the department's Washington, D. C. office has been appointed manager of the new office.

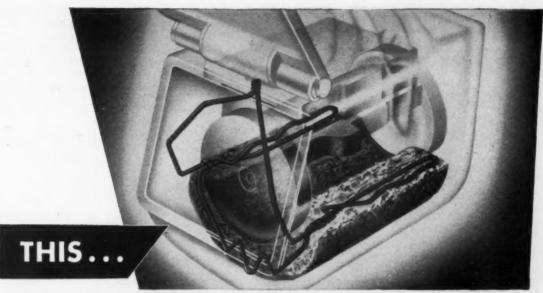
Beardsley & Piper Company, Chicago, has purchased the Flask Lifting Machine Division of the Champion Foundry and Machine Co. Patents, drawings and patent rights have been transferred to the Beardsley & Piper Co., as well as the right to continue use of the Champion name.

St. Louis, Mo.—Curtis Mfg. Co. John D. Lodwick has been elected vice president in charge of sales for the Pneumatic division and Henry C. Morrison has been elected vice president in charge of sales for the Refrigeration division.

Wilmington, Del.—Hercules Powder Co. LeRoy T. Barnette, formerly branch office supervisor of the company's Cellulose Products dept., has been appointed manager of plastics markets of that department.

Botes Exponded Steel Corp., East Chicago, III., manufacturer of light structural steel fabrications, has purchased 16 acres of industrial land at Arlington and Dominguez Streets, Torrance, Calif., from the Pacific Electric Railway Co.

(Please turn to page 330)



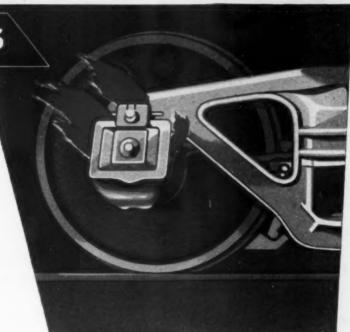
Helps prevent THIS

Another important application of steel spring wire

O NE of the headaches of railroading is "hot boxes"... caused by failure of journal lubrication. And one of the principal causes of lubrication failure is displaced packing and waste grabs.

Our customer, Spring Packing Corporation, Chicago, Illinois, has successfully solved this problem by developing a packing retainer, fabricated at low cost from one of the thousands of types of steel wire made by American Steel and Wire Company. More than two million of these retainers are now speeding service and avoiding lubrication troubles on 75 railroads.

Not only in railroading, but in hundreds of other industries, products made of American steel wire are doing important jobs . . . wire forms, springs, reinforcements, stiffeners, framing, to name just a few. Our engineers are always ready to consult with manufacturers in the design and fabrication of such products. Simply write to American Steel and Wire Company, 412 Rockefeller Building, Cleveland 13, Ohio.



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COLUMBIA STEEL COMPANY

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Tennessee Coal, Iron & Railroad Company, Birmingham, Southern Distributers
United States Steel Export Company, New York

UNITED STATES STEEL

- If you make it of wire . . . make it of the best -

U.S.S AMERICAN

OIL TEMPERED WIRE





in Socket Screw fastenings an ever increasing number of manufacturers are using Holo-Krome Completely Cold Forged Socket Screws because they can depend upon the Guaranteed Unfailing Performance of every single Holo-Krome Product . . . Specify "Holo-Krome".

> Your Holo-Krome Distributor is Ready to serve you from his warehouse stock



THE HOLO-KROME SCREW CORP. HARTFORD 10, CONN.

HOLO-KROME
fibro forged SOCKET SCREWS

(Continued from page 328)

Cleveland, Ohio-Lincoln Electric Co., announces new locations for its branch offices in San Francisco, Los Angeles and Birmingham. The San Francisco office is now at 1302 Sanford Ave., Emeryville; the Los Angeles office at 1500 Calzona St.; and the Birmingham office at 113 North 9th St.

Springfield, Mass.-Monsanto Chemical Co., St. Louis, 4, Mo., announces the appointment of Carl F. Graesser as sales manager of thermosetting molding materials, for the company's Plastics divi-

Horace R. Grant, president of the Allen Mfg. Co., Hartford, Conn., from 1921 to 1945, and chairman of the board of



Horace K. Grant

directors since that time, died at his home in West Hartford on February 11. Mr. Grant had been associated with the Allen Mfg. Co. for thirty years.

Now York, N. Y.—Sylvania Electric Products, Inc. Robert H. Bishop, director of sales and Conda P. Boggs, director of manufacturing, have been elected vicepresidents. Charles H. Goddard, formerly assistant general sales manager, Lighting Division, has been appointed general manager, Fluorescent Fixture Division, and will make his headquarters at the Ipswich, Massachusetts plant.

Philadelphia, Pa.-Reeves Pulley Co., Columbus, Indiana, announces the establishment of a new branch office in the Wilford Building, 33rd and Arch Sts. Philip C. Talbot has been appointed manager of the new branch, and will be assisted by William A. McCosh.

St. Louis, Mo.-Gaylord Container Corp. Leslie W. Gould has been appointed sales manager, mill division, succeeding Otto P. Carter, deceased. M. L. Wuescher has been named assistant sales manager, mill division.

Horvey, III.-Bliss & Laughlin, Inc., announces the appointment of J. Dan Delanty as salesman in the Tri-Cities, covering the states of Illinois, Iowa, and Nebraska.

Seattle, Wash.-General Electric Co., Tungar and Metallic Rectifier division, Bridgeport, Conn., announces the appointment of G. J. Brenner as representative in the Northwest.

(Please turn to page 332)



BUSHINGS

PRECISION BRONZE BARS

leeve bearings have a rugged simplicity. Bunting Cast Bronze Sleeve Bearings are designed for precision operation without delicate complexity in their construction. Bunting engineers are ready to assist in designing for their use. The Bunting Brass & Bronze Company, Toledo 9, Ohio.

Bunding



Gray Iron CASTINGS S.A.E. or A.S.T.M. Specifications Class 20 • Class 30 Class 40

Special Facilities for Rollover — Copeand-drag production to 150 pounds

Other castings up to 1000 pounds

FOREST CITY

FOUNDRIES CO.

Member Grey Iron Research Institute
2500 West 27th St.
Cleveland 13, Ohio
PHONE PROSpect 5040

(Continued from page 330)

Konsos City, Mo.—Clipper Mfg. Co., St. Louis, Mo., announces a partial consolidation of its St. Louis office with newly completed factory and general office at 2800 Warwick, Kansas City, 8, Mo. All advertising, material purchases and engineering work will be handled from the new location. The St. Louis warehouse will remain intact at 4030 Manchester, as a permanent shipping point serving that region.

Milwaukee, Wis.—Harnischfeger Corp. has appointed Ralph D. Holcomb general sales manager.

Louisville, Ky.—The Girdler Corp. Boyd R. Hopins has been named sales manager for the corporation's Thermex division, succeeding C. C. Brumleve, resigned.

New Orleans, La.— Superior Engine division, National Supply Co., Philadelphia, Pa., has opened a Southeastern Regional office at 531 Gravier St. R. E. Hoffmann, formerly manager of the division's office at Jacksonville, Fla., will be manager.

Roveno, Ohio-Columbia Rubber Co., division of the U. S. Stoneware Co., announces the appointment of Robert L. Schroy to direct the company's sales activities.

Chicogo, III.—La Salle Steel Co., announces the appointments of Theo. S. See as first vice-president and general manager, and A. Frank Golick, vice president in charge of sales.

General Electric Company, Meter and Instrument Division, Apparatus Department, Schenectady, N. Y. Richard Cutts, Jr. has been named assistant manager in addition to continuing his duties as manger sales for the division's Meter section. E. J. Boland has been named manager sales, Instrument section; and E. J. Wehrle, consultant of the Instrument section.

Federal Shipbuilding & Dry Dock Co., a U. S. Steel subsidiary, announces removal of all departments in its branch offices in the National Newark Bldg., Newark, N. J., to its general offices, Lincoln Highway, Kearney, N. J.

Sterling Engine Co., Buffalo, N. Y., has purchased manufacturing and servicing rights to the high-speed diesel engines produced by National Supply Co.'s Superior Engine Div., Springfield, Ohio.

Fred H. Schaub Engineering Co., Inc. and its subsidiary, Magnetrol, Inc., Chicago 23, Ill., have moved their offices and plant to 2110 S. Marshall Blvd.

Hammond Iron Works, Pittsburgh district: D. D. Foster Co., 412 People's Gas Building, Pittsburgh, has been appointed district representative.

INDUSTRIAL DEVELOPMENTS

Noranda Copper and Brass, Limited has been formed to take over and operate the Canada Strip Mills plant at Montreal East, Canada, purchased from the War Assets Corp. by Noranda Mines, Limited, Toronto, Canada. The Bridgeport Brass Company, Bridgeport, Conn., is associated with Noranda Mines in the operation of the new company. While Noranda Mines has financial control, Bridgeport Brass has a substantial minority interest. Management of the new company is



James Y. Murdoch and Herman W. Steinkraus

being directed by Herman W. Steinkraus, president of Bridgeport Brass, who is also president of the new organization. Operations and sales are in charge of M. W. Batchelor, vice-president in charge of operations, Bridgeport Brass Co., and A. R. Zender, vice-president in charge of sales, Bridgeport Brass Co., respectively. James Y. Murdoch, K. C., president of Noranda Mines, Limited, is chairman of the board.

Westinghouse Electric Corp., Pittsburgh, Pa., announces plans to expand manufacturing facilities at the corporation's Buffalo, N. Y., plant. The new operation, formerly a part of the Switchgear and Control Division at East Pittsburgh, will be known as the "Industrial Control Division". The corporation has also taken over the Sunnyvale, Calif., plant of the Joshua Hendy Iron Works under a 10-year lease arrangement.

skf Industries, Inc., Philadelphia, Pa., announced plans for expansion of plant facilities to increase production of spherical roller bearings approximately 50% over present production. The Cast Iron dept. is being transferred to Hornell, N. Y., and the Cage Stamping dept. to Shippensburg, Pa.

Federal Shipbuilding & Dry Dock Co., a U. S. Steel subsidiary, announces removal of all departments in its branch offices in the National Newark Bldg., Newark, N. J., to its general offices, Lincoln Highway, Kearney, N. J.

Towmotor Corp., Cleveland, Ohio, has completed a new building, doubling its present plant area.

(Please turn to page 334)

Ful-Vue
Safety Goggles
for Good Looking
Eye Protection

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Workers like A-O Ful-Vue
Safety Goggles for their comfort
and good appearance. Shaped to
conform to the orbit of the eye,
lenses are brought closer to the face,
leaving no unprotected area around the
bridge of the nose. Made in three eye and three
bridge sizes, with 6-curve Super Armorplate Clear
or Calobar lenses—with or without side shields.

The nearest A-O Safety Representative can supply you. American ® Optical

Safety Division

SOUTHBRIDGE, MASSACHUSETTS. OFFICES IN PRINCIPAL CITIES



DESIGNING & PRODUCING

SPECIAL WASHERS and SMALL STAMPINGS

If you have a problem on Special Washers or Small Stampings, send it to us! More than a quarter-century of specialization has given us the "know how" to handle your requirements capably and economically. Perhaps we already

have the tools that are needed for your next job (we have more than 10,000 sets of tools on hand). If not, our experienced Tool & Die Department will be placed at your disposal. Send us your blueprints or specifications.

THE MASTER PRODUCTS CO. . 6400 PARK AVENUE . CLEVELAND 5, OHIO

RUGGED APRONS



THE H. M. SAWYER & SON CO.
28 Thorndike St. East Cambridge 41, Mass.

(Continued from page 332)

Bousch & Lomb Optical Company, Rochester, N. Y. announces the opening of a plant at Wellsville, N. Y., and arrangements for the purchase of the four-story Navy Building on Champeney Terrace, as part of the company's \$6,000,000 plant expansion and equipment modernization program.

Chose Bag Company, Chicago, Ill., has completed the construction of a new factory in Minneapolis at 3800 Washington Avenue North. The new structure comprising 100,000 square feet of floor space was erected at a cost of \$400,000.

Bradley Paint Engineers, Inc., has been formed with sales and consulting offices in the Jones Law Building, Pittsburgh,



William J. Bradley

Pa., and the manufacturing plant at Connellsville, Pa. William J. Bradley is president of the new concern which is engaged in the manufacture of industrial maintenance paint and industrial product coatings.

General Electric Co., Appliance and Merchandise Division, has purchased a 437,000-Square-foot factory from the WAA. The plant, formerly occupied by the U. S. Rubber Co., will be used for the manufacture of building wire and other electrical construction materials.

Climax Fire Brick Co., Pittsburgh, Pa., announces opening of its new Refractory Specialties Division to produce high temperature cements, castable refractories and plastic fire brick. D. M. Beam, assistant general manager of company, will head new division.

Plymouth Cordage Co., North Plymouth, Mass., has purchased the Federal Fiber Mills, New Orleans, La., which will be operated as a division of the Plymouth Company.

American Lumber and Treating Co., Chicago, Ill., has opened a new plant in Baltimore, Md. It will be utilized in the alloying of wood with creosote, Wolman Salts and Minalith flameproofing salts.

Diamond Alkell Co., Pittsburgh, Pa., has received approval of CPA to construct \$5,750,000 electro-chemical plant at Houston, Tex., for manufacture of chlorine, caustic soda and muriatic acid.

(Please turn to page 336)

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Penflex "Flexineering" solves air transmission problem on new Battery-to-Brooklyn tunnel project

Far out in the East River an island is growing. It's "man-made" for the Battery-to-Brooklyn tunnel project . . . and presents many construction problems. One was transmitting compressed air from a nearby floating unit of compressors, over the water, and on to the island for powering pneumatic tools used in construction operations.

That's where Penflex Engineers went to work. Ordinary air lines would not stand the pressure. Rigid pipes were not practical due to constant motion of the river. Result? "Flexineering" presented the right answer by specifying Penflex Tubing from compressor unit to the main air lines. Plenty of motion . . . plenty of pressure . . . yet entire job

is safe and working steadily under all conditions.

Penflex "Flexineering" (the science of engineering each type of flexible metallic tubing to the particular problem) can help you solve many problems of maintenance, production, and designing of products.

Penflex manufactures a complete line of 4-wall interlocked flexible metallic hose from ½" dia. to 30" dia. Also, seamless welded flexible tubing from ½" dia. to 2" dia., automatic barrel fillers, rivet passers, accessories and fittings. We offer our engineering service and products to improve your production. For further information on the above tunnel case history, write today to Dept. 13.

PENFLEX SALES COMPANY

Division of

PENNSYLVANIA FLEXIBLE METALLIC TUBING COMPANY

72nd Street and Powers Lane Philadelphia 42, Pa.

BRANCH SALES OFFICES-NEW YORK . BOSTON . CHICAGO . CLEVELAND . HOUSTON . SYRACUSE

enflex... HEART OF INDUSTRY'S LIFE LINES



lood...TO THE LAST SLOT

You reach for a CORBIN Machine Screw . . . place it . . . set it up tight—and reach for another! All are *right* from the start because CORBIN does everything practicable to maintain uniform accuracy. Tools are replaced before worn—production is gauge-inspected at machines—slots and threads are examined by inspectors—and samples are checked in the laboratory.

That's why you can "reach for a CORBIN blindfolded and get a good one every time."

Also . . .

Screw Machine Products milled from bar on single- and multiple-spindle automatics... with secondary operations including centerless, cylindrical, thread and internal grinding; roll thread; heattreating; plating and polishing... and rigid inspection all the way.

\$8-7

CORBIN. SCREW DIVISION

The American Hardware Corporation

NEW BRITAIN . CONNECTICUT

Warehouses

TH TRUE-CUT SLOTS AND ROLLED THREADS

CORBINGLOTTED SCREWS

(Continued from page 334)

Crucible Steel Company of America. New York, N. Y., is engaged in a two-year plant expansion and improvement program costing an estimated \$30,000,000, it was disclosed in the company's annual report to stockholders. New mills for large-scale production of stainless steel sheets and strips are being installed, as well as expanded facilities for bars, rods and special sheet "shapes". The program is scheduled for completion by the end of 1938.

Adel Precision Products Corp., Burbank, Colif., announces the acquisition of Aerco Corp., Hollydale, Calif. Aerco plant will be devoted to the manufacture of farm equipment. Adel plants will continue to manufacture hydraulic equipment for aircraft, marine and industrial requirements. The combined activities of Adel and Aerco will be under the direction of Adel president, Clinton E. Stryker. Timothy E. Colvin, president of Aerco will direct sales and engineering activities of that company.

Pittsburgh Plate Glass Co., Pittsburgh, Pa., is undertaking a \$500,000 expansion program at its Houston, Texas, paint and varnish manufacturing plant. The Houston plant is the eighth paint and varnish plant operated by the company. Another plant is under construction at Springdale, Pa., and will soon be in partial production.

Harry Ferguson, Inc., Detroit, Mich., purchased the wartime plant of the Cleveland Pneumatic Aerol Co., at 20001 Euclid Ave., from the WAA, at a price reported to be \$1,900,000. The plant consists of 800,000 square feet of floor space and will be used for the production of tractors.

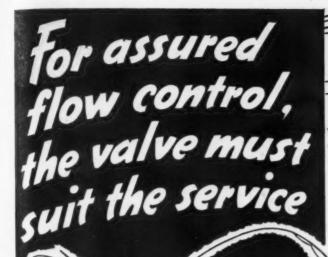
Ford Motor Company, Detroit, Mich., nounces the construction of three additions to the company's steel mill. A new steel ingot mold preparation building and an extension to the pouring aisle are being made to the present open hearth unit and a new stripper building is being erected.

The Hogen Corp., combustion chemical engineering firm, Pittsburgh, Pa., has purchased the Ring-Balance Instrument Co., of Chicago, manufacturers of recordings, indicating and totalizing meters for measurement of steam liquids and gases for use in chemical process plants.

Hydro-line Mfg. Co. has been formed to manufacture air and hydraulic cylinders in standard and special types. Plant and offices are located at 711 19th Street, Rockford, Ill.

F. L. Jocobs Co., Detroit, Mich., manufacturers of automotive parts and accessories and home appliances, has completed negotiations with the National Bank of Detroit and the RFC whereby \$5,500,000 in loan and credits have become available to the company.

(Please turn to page 338)



You don't have to be an Isaac Walton to know what's wrong with these fishing pictures. Silly misapplications of equipment, aren't they? But no sillier than using valves in services for which they were not specifically designed.

Through more than a hundred years of making valves—and valves only—Powell Engineers have been designing the right valves to suit the specific requirements of every existing industrial flow control service. Today, the Powell Line includes Bronze, Iron and Steel Valves of every necessary type, design, size and pressure. And, for corrosion resistance, Powell makes a notably complete line in the widest range of pure metals and special alloys ever used in making valves.

That's why, for assured performance, it pays to consult Powell.

The Wm. Powell Co. Cincinnati 22, Ohio

DISTRIBUTORS AND STOCKS IN ALL PRINCIPAL CITIES



Small size 200-pound Bronze Globe Valve for steam, oil, water or gas. For assured, long-life performance it has a renewable, specially heat treated stainless steel seat and a regrindable, renewable, wear-resisting "Powellium" nickel-bronze disc.



Class 300-pound Cast Steel Gate Valve with bolted flanged yoke, outside screw rising stem and taper wedge solid disc.

For all services for which steel valves are indicated and to handle the higher pressures, Powell makes a complete line of all types and sizes in pressure classes from 150 to 2500 pounds, inclusive.

POWELL VALVES



They used to call me 'THE CREEP.'."

". . . but that was before the boss discovered there was a difference in tracing cloths. Ink just can't help creeping and feathering when you use a French curve, if the tracing cloth has a poor surface."

Arkwright gives you the kind of surface that practically assures razorsharp lines. Oil, wax and soap-free mechanical processing assures uniform capillarity. Even the weaving and bleaching of special cloth is part of Arkwright's exhaustive system of standards, tests and inspections—to prevent pinholes, thick threads and the many other things that cause spoiled tracings, lost time.

Why not try Arkwright and see for yourself what a difference there is? Send for free working samples. Arkwright Finishing Company, Providence, R. I.

All Arkwright Tracing Cloths have these 6 important advantages

- 1 Erasures re-ink without "feathering" or "creeping".
- 2 Prints are always sharp and clean
- 3 Tracings never discolor or become brittle
- 4 No surface oils, soaps or waxes to dry out
- 3 No pinholes or thick threads
- 6 Mechanical processing creates permanent transparency





(Continued from page 336)

Monsanto Chemical Co., St. Louis, Mo., announces the construction of additional elemental phosphorous production facilities at Columbia, Tenn. These will result in over 50% increase on phosphorous production and are scheduled for completion in 1948, and represent an investment of over \$2,000,000.

Morbon Corp., Chicago, Ill., a subsidiary of Borg-Warner Corp., is tripling its production facilities by the erection of four new buildings at Gary, Ind. The new buildings, costing approximately \$400,000, will be used for synthetic resins production.

McBee Company of Athens Ohio announces the opening of new branch sales office in Grand Rapids, Mich., in charge of Terry E. Phelps, army veteran and former manager in Syracuse.

New Humpshire Bull Bearings, Inc., originators and manufacturers of Micro radial and pivot ball bearings have established a plant at Petersborough, New Hampshire.

Owens-Corning Fiberglas Corp., Toledo, Ohio, announces the start of production of Fiberglas insulation in its new plant in Kansas City.

Sterling Engine Co., Buffalo, N. Y., has purchased manufacturing and servicing rights to the high-speed diesel engines produced by National Supply Co.'s Superior Engine Div., Springfield, Ohio.

Magnolia Metal Co., Elizabeth, N. J., has acquired the Evans Engineering Co., formerly of Milwaukee, Wis., now located at Waukesha, Wis.

Chevrolet Division, General Motors Corp., has leased an aluminum forgings plant at Saginaw, Mich., for five years at an annual rental of \$132,324. It was constructed in 1942 for the construction of heavy hammer forgings.

NEW RULING ON INDUSTRIAL SUGAR APPLICATIONS

1 1 1

Applications for sugar allotments by industrial users must be made between the tenth day of the month before the allotment period begins and five days after the beginning of the allotment period in order to obtain the full allotment, the Office of Price Administration announced recently.

The action, effective March 10, 1947, was taken to achieve the convenience of a set date upon which applications may be filed, in place of previous regulations that such applications may be filed twenty days before the allotment period begins.



are "Seeing the Light"

4-WINGED DRIVER CAN'T SLIP OUT

OF PHILLIPS TAPERED RECESS

ed



PRODUCTION-WISE - add sunlamp manufacturers to the host of stove, refrigerator, furniture and other modern-minded makers who are cutting production costs via American Phillips Screws. How? By straight, sure-fire, speedy, automatic driving that's proof against scars, scuffs, work spoilage. No matter what the pace, the 4-winged American Phillips Driver "stays put" — can't harm or hinder work or worker . . . and you can count on time savings up to 50%!

PROMOTION-WISE - American Phillips Screws lend a modern touch — step up the "sell" of whatever you make. They can't snag clothes but they do snag orders! Showmanship and serviceability both say "specify American Phillips."

> AMERICAN SCREW COMPANY, PROVIDENCE 1, RHODE ISLAND Detroit 2: 502 Stephenson Bldg.

Chicago II: 589 E. Illinois St.





FACTORY FLOORS

For Every Factory Cleaning Job

ELEKTRO-PURJ-IT

all Purpose

CLEANING COMPOUND

Costs Less Than 2c per Gallon

The proven choice of many as the

better, faster CLEANER. Saves

labor! Cuts cleaning costs! Added

to water makes the proper

strength solution for each cleaning

job requirement. It's dustless,

non-caking-deodorizes, fresh-

ens. Gentle for hands, surfaces.

Ends need for dangerous fluids.

FREE SAMPLE

Sent on Request

TROJAN PRODUCTS Department

The Diversey Corporation

53W. Jackson Blvd., Dept. p.4, Chicago 4, III.

DISSOLVES

IN WATER ...

INDUSTRIAL PACKAGING AND MATERIALS HANDLING EXPOSITION Numerous practical papers on pack-

aging for shipping and merchandising. and materials handling, are scheduled for presentation at the Second Annual Industrial Packaging and Materials Handling Forum and Exposition, which is to be held at the Hotel Sherman, Chicago, Ill., April 29, 30 and May 1. Speakers will cover the following subjects: Corrosion Prevention and Protective Wrapping, Simplification and Standardization of Containers and Packages for Improved Material handling, Folding Cartons and Set-Up Boxes; Past and Future of Modern Materials Handling; Postwar Export Packaging; forum on Principles of Protective Packaging and General Merchandise Distribution; Corrugated and Solid Fibre Boxes; Wood Contain-

The exposition is sponsored by Industrial Packaging Engineers Association, 20 W. Jackson Blvd., Chicago, Ill.

ers; Loss and Damage Prevention.

CHASE BAG ISSUES BOOKLET MARKING CENTENNIAL

1 1 1

The Chase Bag Company, 309 W. Jackson Boulevard, Chicago, is celebrating its 100th year in the bag business. In connection with this centennial, the Company has prepared a complete, colorful booklet, featuring Chase bags and specialties of all kinds-paper, burlap, cotton, and open mesh, the uses of which are graphically illustrated.

SNAKE BITE KIT

1 1 1

Snake Bite Kit, which provides rapid, dependable emergency snake bite treatment for oil field, construction and utility workers, lumbermen, research parties, section men, etc., is announced by Mine Safety Appliances Co., Pittsburgh 8, Pa. It is a vest pocket size unit weighing 3-1/3 oz. with plastic case. Contents include standard tourniquet, incising knife, self-suction pump, ammonia inhalants, and compresses. Size 4" x 2-3/16" x 15/16". Kit is described in bulletin No. FA 96.

VARNISHES

A 40-page booklet containing complete technical and application data on G-E insulating varnishes has been issued by the Resin & Insulation Materials Division of the General Electric Chemical Department, Pittsfield, Mass. The booklet includes specifications, electrical properties, film properties, cure and aging, chemical properties and baking and air drying cycles of each type. Types con-

sist of black baking, black air drying, clear baking, clear air drying, black baking and air drying, clear baking and air drying sticking varnishes and air drying and baking enamels. Thirty-six grades are described.

INNER TUBE ASSUMES LOAD INCIDENT TO TIRE BLOWOUT

1 1 1

In a demonstration described as "a milestone in highway safety", staged by technical representatives of The Goodyear Tire & Rubber Co., officials from various outlying Detroit communities saw a speeding bus blow a front tire and come to a halt without swerving or lurching. The incident was a public demonstration of the Goodyear company's LifeGuard tube for trucks and buses. Two dynamite caps, connected to a unique ignition wiring arrangement were exploded

Attaching dynamite caps to casing to demonstrate load-carrying qualities of innertube in blowout

in the tire to effect the blowout while the bus was traveling at 50 miles per hour. The inner tube provides a fourply reserve tire within the regular tire which remains inflated and assumes the load to enable the driver to bring the vehicle to a smooth stop.

ELECTRICAL WIRING DEVICE REQUIREMENTS IN 1947

1 1 1

Overall 1947 requirements for critical electrical wiring devices were outlined by Civilian Production Administration officials at a recent meeting of the Electrical Current-Carrying Wiring Devices Industry Advisory Committee.

The requirements, which are chiefly related to housing, include those of the Veterans' Emergency Housing Program, rural electrification, repair and maintenance of wiring in existing housing, and essential commercial and industrial construction.

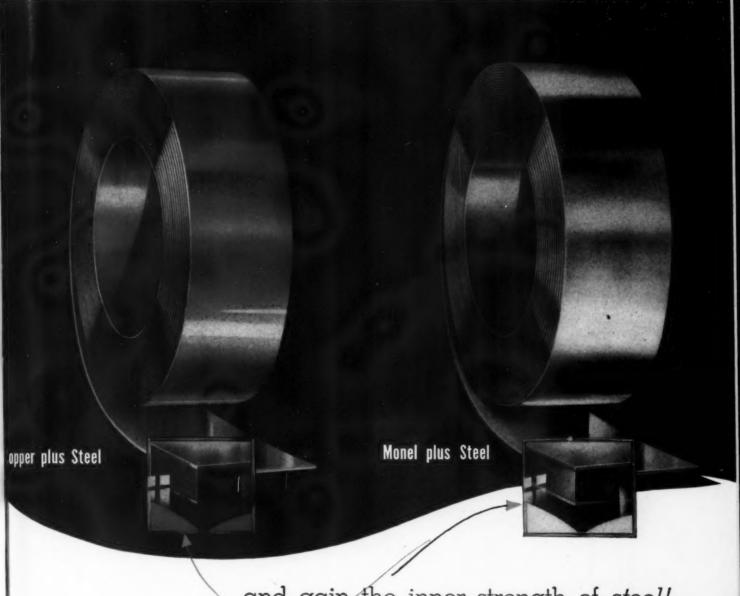
The total national requirements for 1947 are:

For toggle switches, 64.1 million; convenience outlets (receptacles), 66.1 million; medium screw base sockets, lampholders and lamp receptacles, 141.2 million. Requirements for wall plates will match those for toggle switches and convenience outlets. The total requirement (Please turn to page 343)

BOOKLET ON INSULATING

opper

Match the SURFACE to your service needs



and gain the inner strength of steel!

Survey CLAD META

Where you need the surface characteristics of copper, or monel (on one side or both sides) and yet require the physical characteristics of steel for your particular applications, specify SuVeneer* Clad Metal and have what you want!

The cladding metal is inseparably bonded to low carbon steel, in controlled thickness. You can draw, form or stamp the composite SuVeneer Strip in any accustomed manner. You can improve your product, and profit! Let us discuss your possible application.

In the production of fine strip steels since 1892

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SuVeneer Clad Metal

Stainless in all grades

Alloys and Spring Steels

Superior Steel

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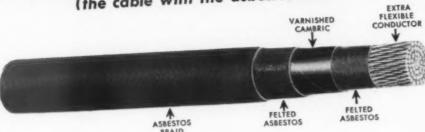
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OS CABLE

(the cable with the asbestos suit)



MADE

First, FELTED ASBESTOS, impregnated with heat and moisture-resisting compound, is applied directly over the copper conductor.

Then, VARNISHED CAMBRIC, in a succession of helical tape wrappings, provides a layer of high dielectric strength insulation.

Again, FELTED ASBESTOS, similar to the first layer, forms a flame, heat and fire resistant barrier to outside conditions.

Finally, ASBESTOS BRAID, woven from heavy asbestos fibre threads, impregnated with a black moisture-resisting compound, secures the entire assembly in a durable, protective covering.

...RESISTS HEAT AND CORROSION

HEAT AND FLAME RESISTANCE-

There's no need to explain the noncombustible nature of asbestos. Stable and permanent, asbestos has been used by the U.S. Navy for years to protect shipboard cables from the external fires of battle damage. Cables installed near furnaces, boilers, soaking pits and other hot locations need Okobestos protection.

CORROSION RESISTANCE - Wherever corrosive fumes, chemicals, oil, solvents are found, those are places for Okobestos cables, whose inert, durable asbestos coverings stand up indefinitely under these conditions.

MECHANICAL STRENGTH - Okobestos cables retain their strong, mechanical ruggedness. They have no organic outer coverings to rot or mildew.



The cable shown above is an extra-flexible strand Type AVA apparatus cable which can be operated up to 110°C (230°F) and is only one of many designs of Okobestos cables available for specific needs. Bulletin OK-2061 describes the types, ranges and applications. The Okonite Company, Passaic, New Jersey.

OKONITE insulated wires and cables



(Continued from page 340) figures do not include deficits accumulated in 1946 of approximately 9.3 million toggle switches and 14.8 million convenience outlets.

The committee agreed that these requirements could be met if sufficient phenolic resin molding compounded is made available. The supply of all other materials and components needed for the production of these current-carrying wiring devices will be comparatively good this year, the committee said.

1 1 1

NEW ALLOY ANNOUNCED BY ELGIN NATIONAL WATCH CO.

The production of a new non-magnetic alloy mainspring for watches, described as the most important advance in watchmaking since the introduction of jewel bearings in 1704, has been disclosed by the Elgin National Watch Company, Elgin, Ill.

The new alloy, known as Elgiloy, is expected to have possible applications in dozens of industries, including the manufacture of razor blades, stainless cutlery, surgical and dental instruments, gun



Unlike steel, Elgin's new durapower spring does not demand a quenching and tempering heat treatment. However, the mainsprings, coiled in rings, are lowered into a furnace for "aging" purposes.

springs, jet propulsion and gas turbine parts, valve parts, chemical equipment, automotive valve springs and parts, electronics, and others.

A wrist watch movement, powered by a durapower mainspring, was placed in a bath of heated aqua regia, a highly destructive acid. Every watch part except the new spring and the jewel bearings dissolved completely in a few minutes. When the liquid cooled an hour later, the mainspring and jewels emerged intact and undamaged.

The outstanding properties of the durapower mainspring include: (1) its 100 per cent resistance to rust, (2) its excellent resistance to all ordinary chemicals, (3) its ability to function without setting, (4) its ability to deliver constant power over long periods of time, (5) its non-magnetic properties, (6) its improved brace assembly, and (7) its superior physical qualities.

(Please turn to page 344)



This is the truck to take loads off your mind.

So for the cost of a Crescent PALLETIER we practically built a new 30,000 foot

warehouse."

The Crescent PALLETIER can help you find extra storage space-high above the floor-right in your own warehouse. The space is free...for the cost of the PALLETIER is quickly offset by lowered materials handling expenses. Write for the PALLETIER bulletin today.

CRESCENT TRUCK COMPANY 1150 Willow St. . Lebanon, Pa.

Member Electrical Industrial Truck Association

PALLETIER **FEATURES**

- · Operator spots and tiers without stirring from seat
- · All control levers at driver's fingertips
- Full magnetic control protects against forced acceleration
- e Inspections and adjustments simplified by easy accessibility to all mechanisms
- Minimum maintenance costs







Flying high-and lasting longer because they're Ampco extruded bronze

Wear-resistant aircraft parts cost less when machined from Ampco extruded stock

Exceptionally high strength-to-weight ratio is an indispensable asset for aircraft parts. This quality is one of seven outstanding performance advantages of Ampco aluminum bronzes—advantages which give better and longer service for vital parts subject to wear in any application.

Extra economies are afforded when you can use Ampco extruded bronze rods. Extruded stock provides sizes close to most requirements—reducing waste and machining time; the smooth finish and compact structure cuts down rejects caused by physical flaws.

Two grades of Ampco Metal and two

grades of Ampcoloy (industrial bronzes) are regularly produced in extruded form by Ampco. Rods in a complete range of sizes are available for immediate shipment, Write for Bulletin 64A for complete details.

Ampco Metal gives these 7 outstanding performance advantages . . . Resistance to — Corrosion • Compression • Impact • Fatigue • Wear — Excellent bearing qualities • Efficiency in extreme temperatures.



Ampco Metal Inc., Dept. P-4
Milwaukee 4, Wisconsin
Field Offices in Principal Cities

FRONT WHEEL DRIVE 1/2 TON TRUCK

New 1½ ton truck developed by the Linn Coach and Truck Co., Oneonta, N. Y. combines aircraft-type construction (trussed tubular steel frame) with innovations of low-floor, front-wheel drive, and a self-contained power unit that can be removed and replaced within 60 minutes. Truck is designed to increase payload, speed, and provide greater cargo safety, economical performance, lower operating costs, and greater all-around serviceability.

ELIMINATING SNOW & ICE FROM DRIVEWAYS

Illustration shows hot water pipe installation in concrete driveway at the Hammondsport, N. Y. plant of Mercury Aircraft, Inc. When complete, hot water with anti-freeze added will circulate



through the concealed wrought iron pipe grids to maintain the surface temperature above freezing and thus keep it free of snow and ice. A heat exchanger in a boiler house near-by will convert steam to hot water for the system which will be kept drained during the warm months.

BUTYL RUBBER NOW AVAILABLE FOR TIRE TUBES OF ALL SIZES

Butyl, the special purpose synthetic rubber with high air-retaining properties, may now be used in the manufacture of tire tubes of all sizes and types, the Civilian Production Administration announces.

Until now, the supply of butyl has not been sufficient for unrestricted use in tubes and it has been prohibited in tubes of 7:00 inch cross section and larger. This restriction was removed by Direction 1 to Appendix II of Rubber Order R-1, effective today.

Manufacturers now have the choice of using butyl or natural rubber in tubes for truck and bus tires. Because natural rubber remains in short supply, its use in passenger car tubes and certain special types of small tubes is still prohibited, CPA said.

Butyl (called GR-I when produced in government facilities) is a special purpose rubber with properties of air retention superior to those of natural rubber. Tube manufacturers now may offer truck and bus tubes of American-made butyl which require only occasional checking of air pressures.

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nay ancaWALWORTH PRESENTS A New Line of N BODY GATE VALVES with screwed or flanged ends



8 Outstanding Features



Straight-Flow Port Design reduces fluid turbulence to a practical minimum.



Seat Rings of endseated type are screwed into the body.



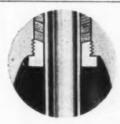
Sure-Grip Malleable handwheel for nonskid gripping even with heavy gloves.



Brass Liner on Glands assures greater resistance to corrosion and scoring.



T-head disc-to-stem connection on OS&Y types provides stronger connection, prevents loosening of disc by corrosion.



Bronze back-seat bushings in bonnets of OS&Y valves.



Solid Web Type disc in OS&Y valves for greater strength and longer service.



Hinged Gland Eye Bolts on OS&Y valves permit faster, easier repacking under full pressure.

WALWORTH

60 EAST 42nd STREET, NEW YORK 17, N. Y.

Valves, write for bul-letin 106.

For Complete Informa-

tion on these new Walworth Iron Body

DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WOBLD

Present Day Practice in Belt Fastening

Every man who has anything to do with the purchase, application or maintenance of conveyor, transmission or V-belts will find the bulletins listed below of considerable value in connection with belt fastening work. A knowledge of present day practice in belt fastening helps reduce the loss in machine hours due to belt failures caused by the use of the wrong type of fastener or improper application. We shall be glad to send any or all of them to you or to any of the men in your organization.



FLEXCO HD Belt Fasteners are used to make a "water-tight" butt joint in conveyor belts ranging from ½" to 1½" thick and of any width. The view on the right shows the various types of rips and patches that can be made with these fasteners and Flexco HD Rip Plates.

Bulletin F-100 gives complete details on how to fasten and repair conveyor belts.



ALLIGATOR V-Belt Fosteners are now being widely used to fasten B, C and D, openend V-belting of cross woven fabric core construction now being made by most belting manufacturers. The view at the left shows a typical application of these fasteners to a drive where endless V-belts would require dismantling the machinery to put the belts on the sheaves.

Bulletin V-205 gives complete instructions on how to use V-belt fasteners.

FLEX V Fasteners for A and B belts are also available for lighter duty V-belt drives. Ask for Bulletin V-14.



"JUST A HAMMER TO APPLY IT"

ALLIGATOR Steel Belt Locing is in worldwide use to make smooth, flexible joints in leather, rubber, balaza, stitched canvas or solid woven belts up to 3/8" thick and as wide as they come.

Bulletin A-60 tells how to fasten and repair transmission belts.

Sold by Supply Houses Everywhere

FLEXIBLE STEEL LACING COMPANY 4697 Lexington Street, Chicago 44, III.

TWIN JET NAVY FIGHTER SUBJECT OF NEW FILM

Completion and release of "The Phantom", a new 16mm sound film in color is announced by the McDommell Aircraft Corporation of St. Louis, Mo. The film has as its subject the new twin jet propelled Navy fighter from which its title is derived. The picture, photographed partially at sea on the Navy's newest aircraft carrier, the Franklin D. Roosevelt, is non-technical. It has a running time of 20 minutes and is available to adult audiences, providing groups desiring to use the film pay transportation cost both ways. Inquiry concerning use of the film should be made to the distributor, The Princeton Film Center, Princeton, N. J.

COLOR MOVIE ON WELDING

The "Marquette Story" is the title of a new 16mm full color movie which presents action shots of interesting details in the construction of Marquette "In stant Arc" Welders. The picture also portrays various laboratory steps involved in the formulating and production of Marquette Electrodes. Applications and uses of the welders in scores of industries, farms, factories, etc., are dealt with. The "Marquette Story" lasts for 33 minutes and may be used with any 16 mm sound projector. It is available without cost to interested groups upon request to Marquette Mfg. Co., Inc., Minneapolis, 14, Minn. Dept. J-7.

SAE WRITES HYDRAULIC BRAKES FLUID STANDARD

First SAE standard for hydraulic brake fluids used in motor vehicles has been approved by the Technical Board of the Society of Automotive Engineers, New York, N. Y., for publication in 1947 SAE Handbook.

The standard, outgrowth of work initiated in 1936, was prepared by the Hydraulic Brake Fluid Subcommittee created by SAE Non-Metallic Materials Committee and comprised of engineers from the staffs of manufacturers of hydraulic fluids, brakes, and vehicles. It covers heavy-duty and moderate-duty fluids, outlines minimum performance requirements, physical properties, detailed test procedure and apparatus.

Specifications establish such properties as viscosity and water tolerance; boiling, flash, and cold points; neutrality, stability, rubber swelling, and corrosion limitations. Heavy-duty fluids, for use under severe operating conditions, have a temperature range of 40 degrees below zero Fahrenheit to 130 degrees above. Moderate-duty fluids, for lighter service, have a temperature range of 30 below to 130 above.

The standard was prepared at the request of the Automobile Manufacturers Association. A subcommittee is continuing its work, studying relationships between brake fluids and corrosion of braking system parts.

(Please turn to page 348)



KENNAMETAL CEMENTED CARBIDE TOOLS, BLANKS, and SPECIALTIES

- FOR FAST, ACCURATE METAL-CUTTING . . . complete selection of single-point tools and milling cutters.
- RESIDENT TOOL ENGINEERS in 24 cities available for expert help in proper selection and correct use.
- WAREHOUSES in Chicago, Cincinnati, Los Angeles, New York, and San Francisco to expedite delivery.



The PURE OIL COMPANY U.S.A.

A Complete Line of Industrial Petroleum Products

A Pure Oil engineer will help solve your lubrication problems. Write nearest office, or Industrial Lubrication Dept., Chicago, Ill.





"Quick as a wink" is the way rubber is locked to metal with the ORCO Quick-Clip method of fastening.

Note the integral stem on the molded rubber part. The stem goes through a hole drilled in the metal. A metal clip slips over the rubber stem. Presto! The rubber part is fastened to the metal permanently. (No tools needed.)

The number and position of stems on a molded rubber part are dependent upon the size, shape and other factors relating to the specific rubber and metal parts to be fastened. Likewise, the design, size, and shape of the metal clip is subject to numerous variations to meet specific conditions. Furthermore, the ORCO Quick-Clip method is not restricted to molded rubber parts. Under certain conditions, the method has practical application to extruded rubber parts.

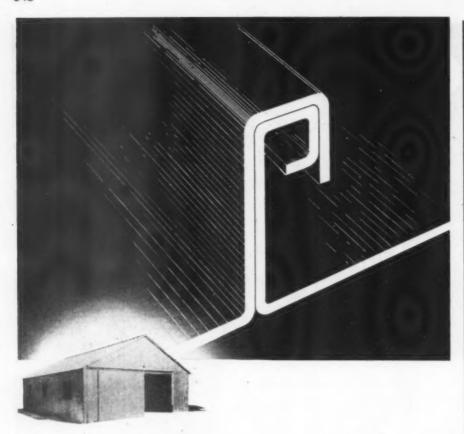
Speed of application and permanency of fastening rubber to metal are two chief advantages of the ORCO Quick-Clip method.

Although numerous conditions still call for the usual ORCO rubber-to-metal bonding processes, the new ORCO Quick-Clip method extends the scope of rubber-to-metal applications.

Inquiries for further information are invited but present conditions make it impossible to make definite delivery commitments.



Branch Offices: DETROIT . NEW YORK . CHICAGO . INDIANAPOLIS . CLEVELAND



This Building Is "Stiff In The Joints"

It is not a sign of old age because the Armco-developed STEELOX joint keeps these standard buildings trim and youthful.

With the revolutionary STEELOX method, the jointed panels provide both structural support and finished surface. For sidewalls they save framing and outside covering. On the roof, STEELOX panels replace rafters, sheathing and roofing. Assembly is simplified, appearance improved and tight construction is assured. The patented joint withstands expansion, contraction and unequal settlement. It remains weathertight even under severe conditions. Unskilled workmen quickly join the panels into a neat, sturdy structure.

There are other advantages in

using Standard STEELOX Buildings. The panels are formed of Armco Galvanized Paintgrip Steel and can be painted immediately or left unpainted. No treatment is necessary. All-steel construction is an excellent fire-barrier. Steelox Buildings have the long life and low upkeep of a permanent structure, yet when necessary can be quickly dismantled and re-erected at another location. All parts are uniformly strong yet light in weight for easy handling.

STEELOX Buildings are prefabricated in a wide range of standard sizes to fit your requirements. Write for prices and complete information. Armco Drainage & Metal Products, Inc., 1615 Curtis Street, Middletown, Ohio.



SUCCESSFUL CAN LABELING

New edition of "Successful Can Labeling," 22 pages, fully revised to include post-war techniques and materials, has been issued by National Adhesives, 270 Madison Avenue, New York 16, N. Y. The handbook covers operating practices for both spot and overlap labeling, by hand and by machine. It suggests the best methods for handling various types of label stock, and covers the choice of adhesives and care of machines.

A detailed check-list section gives causes and correctives for common labeling difficulties such as staining, rusting, slipping or crooked labeling, poor adhesion, wrinkling, failure to pick up labels, and tearing.

A special section, "How to Determine Can Temperatures," will prove of particular value in selection of an adhesive for fast, efficient labeling. The booklet has been compiled from the field experience of the National Adhesives technical staff. Copies are available without charge.

COMMERCIAL STANDARD SINE BARS, PLATES, BLOCKS

Commercial Standard CS141-47, subject Sine Bars, Blocks, Plates and Fixtures, is announced by the Division of Trade Standards, National Bureau of Standards, Washington, D. C.

SMOKE ELIMINATION BY OVERHEAD FIRE JETS

The important role of modern overfire air jets, as developed and perfected by Bituminous Coal Research, Inc., was described by William S. Major of Pittsburgh, Pa., BCR development engineer, in talk to members of the Engineers Club of Kansas City.

"The chief role played by the jets," he said, "is elimination of smoke from railroad locomotives, river boats and stationary plants. The value of jets for this purpose was first recognized by the railroads, 30 of which now have more than a thousand locomotives equipped with BCR-designed jets. Jet installations have also been made on many stationary plants—in the commercial and industrial classes—and today river boats are beginning to utilize jets to eliminate smoke."

Mr. Major illustrated his talk with slides showing drawing of actual jet installations and control devices. The use of jets on all of the well-known types of firing equipment was described, and there was discussion of automatic and semi-automatic controls of jets on stationary plants. He said that there is increasing use of jets in plants having "small combustion chambers", including river boats and older industrial boilers. He outlined recommended practice for installing jets in handfired boilers as well as in plants having single-retort, multiple-retort, spreader and chain-grate stokers.

(Please turn to page 350)

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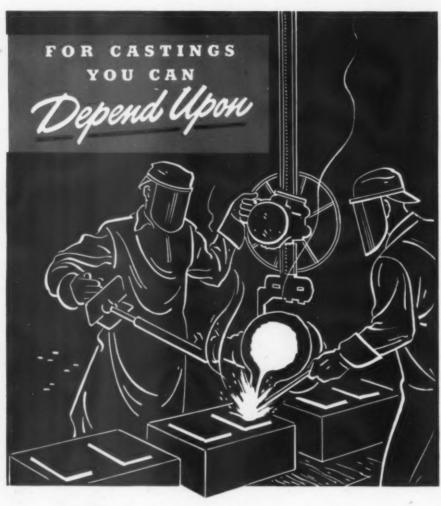


• Year after year customers keep sending in repeat orders for Buffalo bolts ... good evidence that you can rely on the dependable quality of these famous fasteners. For circle (a) bolts and nuts have a long-established reputation for uniform size and strength ... qualities that contribute to the speed and efficiency of assembly operations ... qualities that improve the reliability and stamina of manufactured products. For the best in bolts, make it a practice to specify circle (a) Buffalo Bolts.



BUFFALO BOLT COMPANY

NORTH TONAWANDA, N. Y. . SALES OFFICES IN PRINCIPAL CITIES Export Sales Office: Buffalo International Corp., 50 Church Street, New York City



always call SUPERIOR

Superior's method of continuous "quality-control" is your assurance of gray iron, alloy iron and electric furnace iron castings which meet the requirements of the most exacting specifications. Offering consistent uniformity of grain structure and cross section density, Superior castings may be milled, drilled, turned and otherwise machined easily and economically. That's why it always pays to call Superior.

METALLURGICAL CONTROL

Closest control of the melt, assures highest quality of finished product.

MACHINABILITY

No hard spots to dull tools; uniform grain structure assures easy machining.

ACCURACY TO SPECIFICATIONS

Superior experience and "know-how" assure uniform castings accuracy.

CLEAN SURFACE

Superior castings have clean, smooth surface.



FOUNDRY, INC. 3542 EAST 71st STREET CLEVELAND 5, OHIO

MIchigan 3078

G E ANNOUNCES 400 AMPERE SEALED RECTIFIER TUBE

A new 400-ampere sealed ignitron, Type GL-507, which is part of a line of tubes for high-power rectifier service, has been made available by the Tube Division of General Electric Company's Electronics Department, Schenectady, N. Y.

The GL-507, largest sealed ignitron in its class, with an average current rating of 400 amperes, represents an extension of the line which up to now has included tubes with 100-ampere and 200-ampere current rating, according to J. E. Nelson, in charge of the sale of transmitting and industrial tubes for the division.

Its primary application is for use in power rectifiers for mining, electrochemical, transportation, steel, and many other industries. he said.

industries, he said.

The GL-507 is over two feet tall and weighs about 100 pounds. According to General Electric tube engineers its design provides the control characteristics of the thyratron, the versatility of the half wave tube in circuit application work, and the very high emission capacity of the mercury pool.

UNITED STATES LEADS IN PORCELAIN ENAMELING INDUSTRY

Even though porcelain enameling is a much older industry in Germany than in the United States, German volume and speed of production of porcelain enameled goods are far behind our own, according to a report on the German Porcelain Enameling and Ceramic Color Industries by C. J. Harbert, Harshaw Chemical Company, recently released by the Office of Technical Services, Department of Commerce.

The report pointed out that, in general, observed porcelain enamel plant layouts and manufacturing methods were obsolete and inadequate when compared with American standards. Since porcelain enameling, as an industry, was subject to approximately the same difficulties and curtailments in both Germany and the United States during the war, a direct comparison of progress between the two countries may be considered fair to both.

German research laboratories were reported well-equipped and staffed by adequate personnel. With respect to such fields as ceramic colors, however, both research and production were at a standstill during the war.

Photostatic copies or microfilm of the Department of Commerce report may be obtained from the Office of Publications Board, U. S. Department of Commerce, Washington 25, D. C. (PB-40316).

THE GLYCERINE SITUATION

One of the reasons why soapmakers are doing their utmost to procure fats and oils, is the sharp increase in the demand for their co-product, glycerine,

(Please turn to page 352)

30

ON STANDARD OR "SPECIAL" SET-UPS



Only MO-MAX GIVES YOU ALL THESE ADVANTAGES

- 1. MO-MAX has superior cutting qualities.
- 2. The machinability of MO-MAX is unexcelled.
- 3. MO-MAX is economical. Its specific gravity is about 8% less than that of 18% tungsten steel.
- 4. MO-MAX is available in a standardized composition; also in cobalt and high vanadium varieties for special high speed steel requirements.
- 5. For 14 years MO-MAX has demonstrated its superiority in all types of cutting tools.

Learn all the facts! Send for your copy of the MO-MAX Handbook, sixth edition. Get the full story about this remarkable steel, including easy-to-follow instructions on heat treating.

THE CLEVELAND TWIST DRILL COMPANY

1256 East 49th Street

Cleveland 14, Ohio

Buyer's Guide to Brands of MU-MAX

"LMW" . . Allogheny Ludlum Steel Corporation "BETHLENEM HM" "STAR MAX" . . . Carpenter Steel C "DI-MOL" . . . Firth-Sterling Steel Com 'HI-MO" Halcomb Stool Con "REX T-MO" "MOGUL" Jossep Steel Co "TATMO" . . . Latrobe Electric Steel Co "S. T. M.". "MO-TUNG" Universal-Cyclops Steel Corporati
"8-H-2" . . Vanadium-Alloys Steel Campa
"VUL-MO" . . Vulcan Crocible Steel Cappa

RITCO

MACHINED **FORGINGS** and UPSETS



Where accuracy and maximum strength are essential, you can rely on RITCO drop and upset forgings. Smooth and free of flash, they are produced in steel or nonferrous metals, from 1/4 lb. to 15 lbs. in accordance with your blueprints. Our equipment for finishing-machining, grinding and assembling-is complete and modern. Estimates gladly submitted.

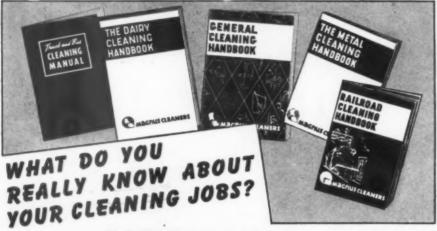
REMEMBER RITCO FOR

Drop and Upset Forgings • Complete Machining Facilities Special Bolts, Nuts and Studs • Milled Body Bolts

RHODE ISLAND TOOL

148 WEST RIVER STREET
P. O. BOX 1516, PROVIDENCE 1, RHODE ISLAND

* Serving American Industry Since 1834 *



THOROUGH understanding of the why and how of A industrial cleaning as it applies to your particular cleaning operations will enable you to improve the quality of cleaning, cut costs and avoid damage to equipment, painted surfaces, floors, etc., caused by wrong methods and unsuitable cleaning materials.

There's a Magnus Cleaning Text Book for each of the following industries:

AUTOMOTIVE . AVIATION . BAKING . DAIRY . TRUCK & BUS FLEETS . FOOD PROCESSING . BUILDINGS . METAL PRODUCTS . PAPER . PETROLEUM . RAILROADS

> You'll find them full of valuable cleaning information. Write for as many copies of each as you can use.

Magnus Cleoners•Methods•Mochines

AAGNUS CHEMICAL COMPANY . 93 SOUTH AVE., GARWOOD, N. J.

Service Representatives in Principal Cities

IN CANADA - MAGNUS CHEMICALS, LTD., 4040 RUE MASSON, MONTREAL 36, QUE.

(Continued from page 350)

which has a multitude of basic industrial and reconversion uses, stated N. N. Dal-ton, chairman of the research committee, Glycerine Producers Association, at recent meeting of the Association of American Soap and Glycerine Producers in New York.

Leading producers point out that the present shortage of glycerine originated in heavy United States military demands and Lend Lease shipments to Allies during the war years, as well as in the war-caused shortages of the fats and oils from which glycerine is made, he said. Restorage of normal supplies and distribution of fats will go far toward relieving the present situation.

Factors encouraging to soap and glycerine producers and users are: the rapid growth of imports into the United States of copra from the Phillippines from which coconut oil is produced, the prospect before long of getting Belgian Congo palm oil, and announcements by official government agencies, including the Department of Agriculture that in 1947 this country will be returned to a fat import basis for the first time since the war began. However the allocation of exportable world fat supplies by the International Emergency Food Council still remains an important factor in determining what supplies will be available in the United States.

It is pointed out that to meet the military necessities of our allies, the United States exported 88 million pounds of glycerine in the years 1940-1944 and that United States stocks of glycerine were still further depleted by heavy demands for rocket powder in the year 1945.

After World War I, glycerine supply situation righted itself almost immediately due to free markets and good world supplies of fats. The situation after World War II has offered no such parallel owing to the longer duration of the conflict, its more serious effects on world fat producing areas, and the post-war continuance of allocations of fats and consequent restriction on use in the United States.

Glycerine producers estimate that the glycerine supply available during 1946, including imports, was between 175 and 180 million pounds of absolute glycerol (100% glycerine) which is 45 per cent more than the average yearly United States disappearance from 1935 to 1939. This rate of demand has been accentuated by pent-up consumer demand for peace products, while at the same time the output of glycerine was curtailed through most of 1946 by restrictions on the amount of fats and oils which were permitted to be used for soap and glycerine production. These restrictions have now been removed.

The United States is practically self sufficient in the production of natural glycerine from fats. The synthetic glycerine production promised in 1948 may create a domestic surplus of the product unless new uses which have been developed in the past few years continue to grow.

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PREFERRED 5

by 59 leading makers of hydraulic machinery

Hydraulic service imposes extra-heavy demands on pressure gauges. Applied to hydraulic machinery, gauges must be extremely accurate, yet sufficiently rugged to stand up under the high pressures and unpredictable shocks which character-

ize hydraulic operation.

As a result, manufacturers in this field are highly critical in selecting gauges. So there could be no more impressive tribute to Marsh quality and stamina than the preference accorded Marsh Gauges in this particularly difficult field.

and stamina than the preference accorded Marsh Gauges in this particularly difficult field.

Here is a field in which firms are large in size, but small in number; yet Marsh Gauges are currently used by 59 leading manufacturers whose output, conservatively estimated, represents a substantial majority of the nation's production of hydraulic machinery. The products include every type of equipment—testing, lifting, forging, forming, broaching and forcing presses applying pressures up to thousands of tons.

Yes, the designers of hydraulic equipment have recognized in Marsh Gauges the same combination of qualities that they have so well mastered in their own equipment—the combination of accuracy and stamina. A significant tribute, this, but merely one more example of the preference accorded Mash Gauges, in many fields.*

For your pressure gauge needs, why settle for less than the instruments preferred by the most critical users of pressure gauges?

JAS. P. MARSH CORPORATION 2035 Southport Ave., Chicago 14, III. Export Dept.: 155 E. 44th St., New York 17, N. Y.

Jos. P. Morsh products include: A full line and range of gauges in pressure, compound, altitude, hydraulic, sprinkler, ammonia, ounce-graduated retard, test, and diaphragm types. Dial thermometers in rigid stem and remote reading types. A broad line of steam and hot water heating specialties. Ask for literature.

MARSH ALONE HAS THE "RECALIBRATOR"

—quickest and best way to correct a gauge that has been knocked out of adjustment by improper handling.

MARSH GAUGES

*Subsequent advertisements will cite additional examples of this.





"Give The P.A. All The Facts"

SELECTING the right source is a 'tough' job. Salesmen help themselves best and the Purchasing Agent most by giving him all the details—all the engineering data. Only when all the facts are known can an intelligent selection be made.

"I always make dead sure the Purchasing Agent has complete and full information about my products," says Branch Manager Mr. E. N. Turner, "for then, I know my company will get full consideration and the Purchasing Agent can do a really intelligent buying

job." A check-up will show that your salesmen, too, make sure to keep Purchasing Agents constantly informed about your company's products. Is your *printed* selling doing the same?

There is one sure way to get your advertising to the P. A. There is one publication he will surely read every month. PURCHASING is his own magazine...edited for his job interest. Ask your own Purchasing Agent about it or write PURCHASING, 205 E. 42nd St., New York 17... Chicago, Cleveland, Los Angeles.





A CONOVER-MAST

THE NATIONAL MAGAZINE FOR PURCHASING EXECUTIVES

We want EVERYBODY to know how today's P. A. functions

Many successful Sales Engineers like Mr. E. N. Turner know that no piece of equipment is too technical or complex to discuss intelligently with the Modern Purchasing Executive.

And we want every one of America's Sales Executives to recognize this truth. That's why month after month advertisements like the one on the left appear in magazines read by more than 40,000 men responsible for the sales and advertising of Industry's leading manufacturers.

The publishers of your magazine "Purchasing" will continue to conduct this campaign for a sound understanding of industrial distribution and procurement. This is a service not only to the purchasing group but to all industry.



What type of STAINLESS FASTENER do you need?



Prompt delivery from the largest stock in the nation!

Screws...nuts...washers...
pins...Allmetal carries the largest
stock in the country of stainless
steel fasteners and screw machine
parts. We also have facilities for
heading, tapping, drilling, reaming, slotting, turning, stamping,
broaching and centerless grinding
... and we work not only with
stainless and monel, but also with
duralumin, aluminum, brass,
bronze, or any other non-corrosive
metal. All parts produced to close
tolerances. Write for our catalog
today. Allmetal Screw Products
Co., lnc., 33 Greene St., New York, 13.

Send for FREE CATALOG



This new, \$3-page catalog helps you select the cotrect size and type of non-corrosive fastening device for any particular job. Includes stock sizes, specials that can be made, engineering data, etc.
Make request on company letterhead.

Write to Department PG

ALLMETAL
SCREW PRODUCTS CO., INC.
33 Greene Street, New York 13

SPECIALISTS in STAINLESS FASTENERS

Recovery and Re-Use of Indoor Air

(Continued from page 112)

various court rooms.

The installation of activated carbon air recovery units in this large building made possible the reduction of the outside air intake by more than 100,000 cubic feet per minute. Without the units, 275 tons of additional refrigeration equipment would have been necessary for summer air conditioning, and approximately 10 million BTU per hour additional radiation and boiler capacity for the heating season. The savings in fuel and electrical energy are placed at approximately 90,000 gallons of fuel oil, and 122,000 KW hours of current per year.

In Washington, D. C., the installation of the activated carbon units in a large theatre eliminated the need for 65 tons of refrigeration for cooling. In Kansas City, Mo., the recovery of air in a large war plant, approximating 380,000 cubic feet of conditioned air per minute, effected a saving of 800 tons of installed cooling equipment. The estimated saving in fuel oil during the heating season was 500,000 gallons; and during the cooling season, the operating saving was equivalent of 450,000 kilowatt hours in energy.

There are many installations portraying direct savings. However, among the unusual cases, there are two that are outstanding; one involved the use of activated carbon units in the elimination of what was thought to be tarnish or "corrosion" problem in an automatic telephone exchange. Laboratory research demonstrated that the tarnish was not corrosion; rather, it was a microscopically thin film on silver contact points deposited by sulphur dioxide entrained in ventilating air, though the air was being thoroughly filtered for dust, and dirt. The tarnish caused "channel" noises sizzling sounds in the telephone circuit. These were practically eliminated by using activated carbon units to remove the sulphur dioxide the tarnishing agent, from the air.

In the other case, a pharmaceutical company was experiencing complaints incident to the exhaustion of sulphidic gases into the air, creating a neighborhood nuisance. The nuisance was abated by the installation of the activated carbon units. A large restaurant in New York City, hemmed in by office buildings, was the recipient of complaints because of kitchen exhaust, and also received an order from the

Health Department to eliminate the nuisance. The trouble was eliminated by activated carbon air purification.

Engineers claim that up to 80% less outdoor air is required in the average building, whether commercial, industrial or public assembly, by the use of air recovery equipment employing activated carbon.

When the carbon has reached a saturation point, which may cover a period of six months to a year or more, depending upon the type of service required of it, it is removed from the system for reactivation and consequent re-use.

FILM ON WIRE ROPE

"Lifeline" is the title of film giving the story of wire rope, announced by the Macwhyte Company, Kenosha, Wis. The story is given by three radio announcers by means of an electrical transcription recording and a series of pictures. In 25 minutes an audience sees and is told how wire rope is engineered and designed, how the wire is made in one continuous length and test, and finally how the wire is processed into wire rope. Equipment necessary for the showing is a slide film sound projector. Film and recording are available upon request.

SHELDON



Horizontal Milling Machine

Rigidly built for continuous heavy-duty precision service. Spindle supported in double row Timken Taper Roller Bearings. Fully enclosed variable drive, choice of two spindle speed ranges, 100 to 1000 or 125 to 1350 r.p.m. Taper gibs thruout.

Write for circular
SHELDON MACHINE GO., INC.
4253 N. Knox Ave. Chicago 41, U. S. A.

A Little "IRONING" That's Long Overdue!



Now that we're approaching the good old days of sell and deliver, why not "iron out" the flaws in those backward numbers? Simply changing to a different material may easily do it. Better ductility, greater rust resistance, cleaner machining, finer finish, more resilience, firmer joints—any one of such improvements can boost a slow seller into first place over night! In this respect, we suggest you get closely acquainted with the SEYMOUR products described below.









LET THIS "BIG 4" HELP IRON OUT DESIGN & PRODUCTION TROUBLES!

SEYMOUR NICKEL SILVER

A wide ductility range makes it the perfect alloy for spinning and drawing.

Its silvery white color makes it an excellent base for plated ware.

Has the ideal uniform grain for the etching process.

Leaded for free cutting, it has unsurpassed workability.

SEYMOUR PHOSPHOR BRONZE

High corrosion resistance solves most salt water and dampness problems.

Remarkable fatigue resist-

Fine resilience, producing springs of almost endless life. Extreme toughness makes it highly dependable for small bearings.

SEYMOUR NICKEL ANODES

Made of virgin nickel electrically melted.

Cast under accurate pyrometric control and constant laboratory check.

Special grain structure reduces sludge and loose nickel. Made in all standard shapes and formulas. Special anodes to order.

SEYMOÜR PHOSPHOR BRONZE WELDING RODS

For homogeneous welds of high tensile strength. Clean melting, good penetration.

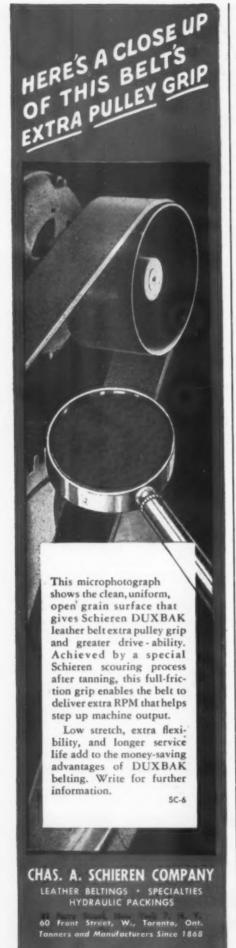
Result of over 60 years in the manufacture of nonferrous alloys.

In grades A, C and D at most welding supply houses.

REMEMBER THE NAME -



THE SEYMOUR MANUFACTURING COMPANY, SEYMOUR, CONN., U.S.A.
NONFERROUS ALLOYS SINCE 1878



Government's Role in A Free Enterprise

(Continued from page 139)

evidence, together with an ever increasing cost of living relentlessly by the demands of organized labor for wage increases.

The degree of such a recession, if any, will depend upon how quickly and successfully we can solve our immediate problems.

First of all, the cost of living must come down, not only to halt the imminent wave of wage demands but to alleviate the pinch on those whose incomes are relatively fixed. There are hopeful signs that this can be done-the wholesale commodity price index has declined from its high and will continue to decline, possibly as much as 15% to 20% by the year's end. The price decline in soft goods has already been seen as the pipelines of supply become filled. These declines in cost are favorable rather than unfavorable factors, and represent corrections of maladjustments in the overall price structure. You and I will now have an increasingly larger portion of our disposable income to expend on consumer durable goods or for investment purposes.

Secondly, it is vital that 1947 be free of crippling strikes, particularly in the steel, automobile and coal industries. Fortunately, there seems to be some hope that peaceful settlements can be made. Union leadership seems finally to have come to the realization that, notwithstanding the Nathan Report, wages cannot be increased without price increases unless there is an offsetting increase in labor productivity. The latter is the touchstone of our problem. We as a nation can share among ourselves only what we produce; we cannot eat dollar bills or live in a safe deposit box.

Gradually, I believe, we will find equilibrium in our economy, and can avoid a major recession. We can have great faith in the common sense of the American people. But, if our free enterprise economy is to flourish in the years to come, we must strive to make it really free. A new capitalism for the enrichment of the many and not of the few is the hope of this country and the world. With the government limited to its proper sphere, capital and labor can turn the miracle of postwar recovery. The alternatives of failure are as clear as daylight, for they exist in every other corner of the world.

Magnesium Castings Are Available Now

OFTEN AT EQUAL OR LESS COST

Because of their excellent machining qualities, Magnesium castings often cost less than finished castings of other metals. We make Magnesium alloy castings of all sizes, from a fraction of an inch up to six feet in diameter for a variety of uses, including aircraft, textile machines, office equipment, scales, fish line manufacturing, vacuum cleaners and toys. Why not investigate the possibilities of using Magnesium?

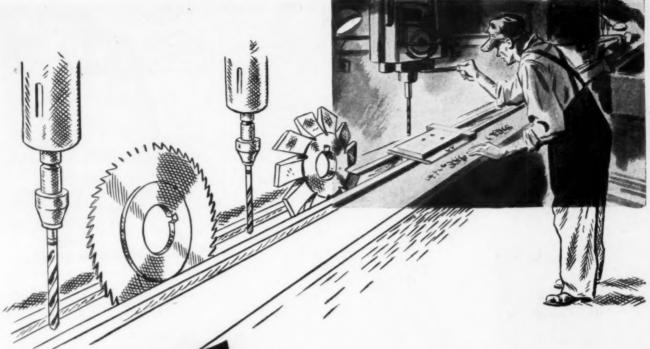
Write for complete information to

UTICA RADIATOR CORPORATION Magnesium and Aluminum Castings UTICA 2, N.Y.



MAGNOLIA METAL CO.

14 West Jersey Street Elizabeth 4, N. J. Warehouses in Ft. Worth, Chicago, San Francisco and Montreal





SEALED BID SALES OF

Cutting Tools

\$54,000,000 worth of cutting tools are available now to you in the metal working industries who act quickly. Thousands of types to choose from, prompt delivery, and bargain prices to those who inquire, inspect and invest. The inventory includes: cutting tools for machine tools, metal turning tools for metal turning machines, accessories and attachments for machine tools, and tool room specialties in all sizes and types.

Sales of cutting tools will be held at frequent intervals. The entire inventory will be sold on a sealed bid basis and while every regional office has a stock of cutting tools, the largest inventories are located in these cities.

BOSTON • PHILADELPHIA • CINCINNATI
CHICAGO • CLEVELAND • DETROIT
ST. LOUIS • LOS ANGELES

Contact your nearest WAA Regional Office or any of the regional offices listed below requesting that your name be placed on their mailing lists for all future offerings. Arrangements will gladly be made for inspection prior to submitting bids.

OFFICE OF GENERAL DISPOSAL

WAR ASSETS ADMINISTRATION

Offices located at: Atlanta • Birmingham • Boston • Charlotte • Chicago
Cincinnati • Cleveland • Dallas • Denver • Detroit • Fort Worth • Helena • Houston
Jacksonville • Kansas City, Mo. • Little Rock • Los Angeles • Louisville • Minneapolis
Nashville • New Orleans • New York • Omaha • Philadelphia • Portland, Ore. • Richmend
Salt Lake City • St. Louis • San Antonio • San Francisco • Seattle • Spokane • Tuise

1082

UNITED STATES RUBBER COMPANY



U. S. SKIPPER SUIT

- -Heavy drill, doublecoated rubber
- -Can be worn over heavy clothing
- -100% waterproof

U. S. WORK APRON

-Heavy drill, doublecoated rubber





- -Double-backed for extra
- —11 ventilating outlets, heavy fining, corduroy-edged collar

U. S. BOOTS

-Leak-tested under water. Snug at heel and over ankle. Non-skid "Cleatred" sole Shingled construction.



4 or 5-buckle styles, Leak-proof construction, buckles firmly anchored



You'll keep DRY with U.S.

Never before have we offered protective work clothing with such superlative comfort, feel and wear; engineered by U.S. scientific compounding and bonding of rubber-to-fabric—results of many years of experience as the largest maker of rubber work clothing.

Sold only through Industrial and Retail Stores

MAKERS OF

U. S. ROYAL RUBBER FOOTWEAR



U. S. INDUSTRIAL





And many may be on your drafting board right now! Your new spring's success will depend largely on how it is produced, how closely it's held to specification. Let us study your drawings — the right springs in the right places can mean manufacturing economy, plus smoother functioning products for you.

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The Buyer Looks At Escalation

(Continued from page 135)

ing rating contracts to deliver products to a customer with a triple A financial rating. The customer has also guaranteed him against loss on the transaction. The period for financing should be less than a year. This is the finest type of commercial paper and obtains the lowest rate of interest.

The utility has the problem of initiating and completing a plant addition, and when the addition is finally earning, its cost must be transferred from interim financing to the long term financing of bonds and stocks. The utility can never cut its interim financing to the short terms and low interest rates carried by the commercial paper the manufacturer can issue against his contract. Besides, he is hemmed in by the red tape of government regulation. Why do this financing in the most expensive and difficult way?

Purchasing From The Management Viewpoint

(Continued from page 130)

the proper economic operation of the organization.

Management has in the past several years placed such an importance on these phases that it has seen fit to place their administration in the hands of competent purchasers instead of men whose main duties involve other phases of the company's operation. Not every purchasing department adequately carries on these functions, but they should be given careful study by the man or department who would be a good purchaser from whatever angle management may regard him. I realize that there may be many executive and purchasing men who never think of these angles of the business of buying, but I firmly believe that the time is rapidly approaching when all good management will demand these things of its Purchasing Agents.

THE BATTLE AGAINST RUST NEW SOUND FILM

"The Battle Against Rust" is title of 12-minute film on cost and damage caused by rust, and the production and uses of Rust-Oleum as a rust preventive, available from the Rust-Oleum Corporation, 2425 Oakton Street, Evanston, Illinois.



Nope! Not <u>This</u> Kind of Stripper

... but we do have strippers that remove paint from wood and metal like magic. And that's not all. Specialized Turco Industrial Cleaning Compounds, utilizing famous Turco Surface Chemistry*, solve every cleaning job better, faster and easier in every industry, every business and every institution. Call your local Turco Field Engineer today.

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Technical Service Available to Buyers

(Continued from page 97)

Smaller War Plants Corporation. TAS in those emergency days helped hundreds of industrial plants to lick special problems of production, management, technology and supply by canvassing government and private sources for tried and tested solutions.

A Permanent Branch

Today the TAS is a permanent branch of the Office of Technical Services, and its skilled technical personnel are at your command. Whenever the bizarre problem, the unique production difficulty, the new materials headache arises in your line of duty, you can turn to TAS, sure that it will have some answers for you from government and non-government research, development and production experience.

Sometimes the solution of a purchasing problem does not exist. The problem may be a new one, arising from the constantly growing complexity of our industrial methods. Take for example the big new field

of powder metallurgy—a field of limited interest, it is true, yet a field whose problems are typical of many other new and growing industries. Another OTS unit, known as the Industrial Research and Development Division, can assist in financing basic research in new technologies, as it is already doing for powder metallurgy.

OPRD Peacetime Form

IRDD grew out of the War Production Board's famed Office of Production Research and Development. During the war OPRD, by letting research contracts for the development of industrial technological and materials ideas, helped speed the war effort. Today, in its new and smaller peacetime form, with a budget of a million and a half dollars authorized by Congress, IRDD encourages technological progress by partially or wholly financing the development of new products and new processes for which sufficient development funds cannot be found in industry. A buyer is in a strategic spot to learn of his company's needs for new technological developments. It is his privilege-and his responsi-

bility-to find out if IRDD can help by contracting for development work with government, private non-profit, or even industrial research laboratories. IRDD is barred by its charter from participating in the development of ideas which industry could do equally well and which would not be developed at all without IRDD. It does not set out to compete with America's many effective private research firms. Only when an idea seems about to die from lack of support, and when that idea shows promise of assisting the nation as a whole, or a substantial part of it, by increasing employment and raising standards of living, can IRDD enter the picture.

A Technical Service

The Office of Technical Services is what its name implies — a technical service for business and industry. It is concerned solely with production and technological matters. The purchasing officer who comes across such practical problems in the course of his work will find OTS a helpful and imaginative assistant in locating effective and economical solutions.





By utilizing the physical principle of the taper, the new Ladish Seamless Welding Tee distributes stresses and strains uniformly over the entire design, thus assuring maximum strength at every cross section. During manufacture, extra metal is scientifically distributed to the center section and to the crotch, with the metal tapering off to the nominal pipe size at the ends. This taper enables a Ladish Tee to absorb with increased efficiency the pressures and mechanical loads which vary in intensity at different sectional areas.

A distinctive feature of the new Ladish Tee design is the long crotch radius which reduces resistance to flow and minimizes pressure loss. Full length branch outlets give greater welding accessibility and keep high welding heats from the crotch zone.

Combined with this new design, the finer, more uniformly compact metal structure of Ladish Seamless Welding Tees substantially increases their dynamic strength and toughness... while rigid control of melting processes gives added protection against brittleness at low temperatures, and increased resistance to distortion at high temperatures.

LADISH PROVIDES YOU ALL THESE FEATURES

- Scientific metal distribution for maximum mechanical strength.
- Assured weldability results from rigid metallurgical controls that guard against metal impurities.
- Heat code symbol is your permanent proof of the metallurgical integrity inherent in Ladish Controlled Quality.
- Long crotch radius on Ladish Tees reduces resistance to flow.
- Full length branch outlet provides greater ease in welding.
- Smooth inner surfaces reduce pressure loss—retard erosion and corrosion.

Controlled Quality
FITTINGS

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Cudahy, Wisconsin
Please send me the handy
10-page data folder giving
dimensions, weights and
part numbers of Ladish
Seamless Welding Fittings



Seamless Welding Fittings.

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Title.

City.....Zone...State....



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Rugged—thoroughly dependable for carrying thrust and radial loads.

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Short, cylindrical roller design...heavy-duty bronze retainer...lowest possible co-efficient of friction under heavy load.

Norma-Hoffmann heavy-duty Bearings improve the design and performance of products wherever they are used. They are dependable, give friction-free

smoothness and quietness of operation. Available in a wide range of sizes for every load, speed and duty. Write for catalog and engineering assistance.

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FIELD OFFICES: New York, Chicago, Cleveland, Detroit, Pittsburgh, Cincinnati, Los Angeles, San Francisco, Seattle, Phoenix

Recent Anti-Trust Law Decisions

(Continued from page 144)

pany, 258 U. S. 346. Here the Supreme Court of the United States considered a contract between a manufacturer and retailer which created an agency for the retailing of the manufacturer's goods, with provisions for periodical exchange of old goods for new of less value. It held that such a contract, granting an agency contract forbidding the retailer from assigning or transferring the agency, or removing it from its original location, without the manufacturer's consent, and forbidding the retailer to sell on the premises goods of the manufac-turer's competitors, was a "general" restriction in violation of the Clayton Act.

Also, see B.V.D. Company v. Isaac, 257 F. 709, where the higher court said:

"The broad rule that the seller of merchandise outright parts with all control over it, is no longer open to question. While the decisions of this effect have been for the most part in suits where the production with respect to price maintenance was claimed under patent, copyright, or trade-mark, yet the rule stated was applied, not because of such features, but in spite of them, and upon the fundamental ground that the control of the owner over the article sold ended with the complete passing of title. . . . The sale of these goods was absolute, and completely passed title, not only to the goods themselves, but to their enclosed cartons."

FIRESTONE RELEASES TECHNICOLOR FILM ON BUILDING TIRES

The story of rubber tire makingfrom raw material to finished product, is presented in a new Walt Disney Technicolor film, "The Building of a Tire" which has just been released by the Firestone Tire & Rubber Company, Akron, Ohio. Animated and live scenes depict sources and development of raw materials, including the scientific cultivation of rubber trees, shipment of the bales of raw rubber, and the manufacture of synthetic rubber. Complete assembly of the various parts is shown on the tire building machines. Copies of the film may be obtained from Association Films (formerly Y.M.C.A. Motion Picture Bureau) offices in Dallas, New York, Chicago and San Francisco. Film is available in 16 mm; running time 28 minutes.



A West Coast shipper met the carton shortage with a better, cheaper package. Here's the story:

PROBLEM: When sales of the Bray Corporation's SKEETER (shown above) far exceeded anticipation, additional shipping cartons couldn't be bought. Bray tried wrapping the scooters in corrugated paper, padding and kraft paper, sealing with gummed paper tape. But the paper tape couldn't stand the strain of the weight of two metal scooters in each package. So Bray called in a Bauer & Black Technical Consultant. He came up with the

SOLUTION: For the paper tape, he substituted Bauer & Black Industrial Adhesive Tape No. 214—a strong, waterproof cloth tape. To prevent shifting, he bound parts of the dismantled scooters with Tape No. 270, a tape with great tensile strength. Not a single package broke open in transit! Further, cubage and dunnage of shipments were reduced, with appreciable savings. The new package proved even better than the cartons Bray originally wanted, and is now standard!

TAPE MAY HELP YOU, TOO

Whatever your problem—from packaging to insulation—it's a good bet a Technical Consultant can help you iron it out, free. Write Dept. 9-4 today to have him call. You'll be glad you did!

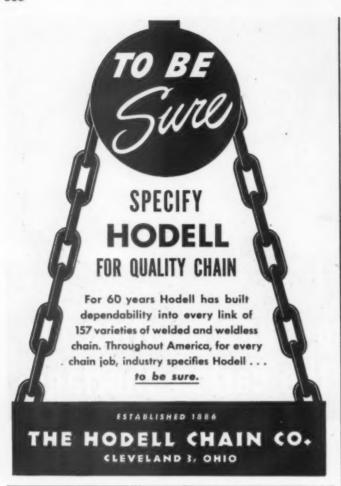
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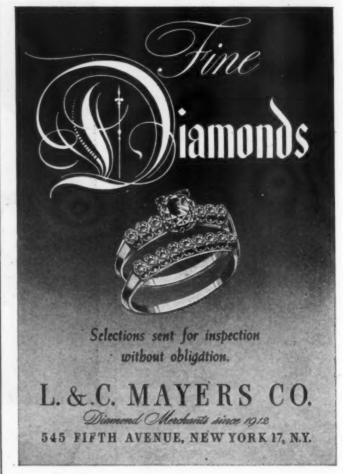
BAUER & BLACK)

Division of The Kendall Company, 2500 S. Dearborn St., Chicago 16

Industrial Adhesive Tape

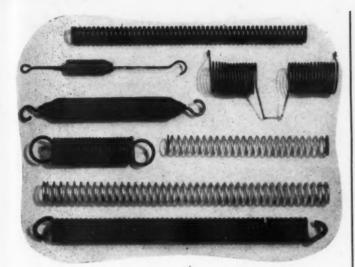
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Reliable Excellence of craftsmanship has always been at a premium in our plant. That means not only exactitude and fidelity to specifications in producing springs—but endowing every Reliable spring with that extra touch of quality,

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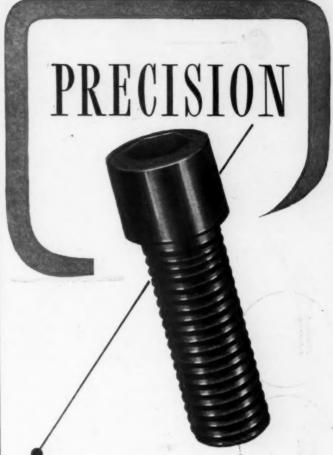
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 When sending inquiry, describe springs as completely as possible, sending sketch, samples, or blue print. Mention any special requirements known, such as working space, initial tension, and load. Our engineers are ready to work with you. Catalog on request.

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Precision manufacture is a factor which has helped build the excellent reputation of "Blue Devil" socket screw products. They are made by specialists in socket screw manufacture—threads are an accurate class 3 fit, sockets are uniform.

"Blue Devil" socket screw products are available in six types, all of which are made of special alloy steel: Socket Set Screws—Socket Head Cap Screws—Socket Head Stripper Bolts—Dardalet Thread Socket Screws—Socket Screw Keys—Socket Pipe Plugs.

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Attention..... Title......



... and self-lubricating packing both are made of versatile Vistex



VISTEX

GLAND

Vistex was developed originally as a peak or visor for caps. Later Vistex was perfected as a reciprocating seal for aviation shock absorbers. It is the strong new member of the American Felt family of versatile, felt base materials.

Vistex is sheet laminated in multiple ply thicknesses or synthetic or natural rubber impregnated felt, available in four standard types for varying applications. High operating and maintenance efficiency are assured . . . without danger

of premature failure from overheating, accelerated aging, decomposition or dimensional distortion in maintenance reassembly.

Controlled ratio of felt fibre to impregnant in Vistex, plus standard density for all thicknesses, provides a self-lubricating sealing material that is well adapted to packing-washers and heavy-duty-bearing seal applications.

Please write, on your letterhead, and ask for Data Sheet No. 14, "Vistex Packings - Gasket - Seals."

AMERICAN FELT COMPANY DATA SHEETS

Write for those you need to complete your Felt reference file.

No. 1-Felt Density and Hardness No. 8-U. S. Army Specifi-cation No. 8-15G

No. 2-Adhesives for Felt Application

No. 3—"K" Felt—Sound Ab-sorption and Thermal Insulation

No. 4-Special Felt Treatments

No. 5—S.A.E. Specifications and U. S. Navy 27F7

No. 6-Felt and Lubrication

No. 7-A.S.T.M. Methods of Test for Wool Felt, D461

No. 9—Sheet Felts, Standard Grades and Specifica-

No. 10—Vibration Isolation With Felt

No. 11—Felt Seals, Their Design And Application

No. 12-Flame-proofed Felt No. 13-Felt in Compression

No. 14-Vistex-Packings, Gaskets, Seals

American Felt

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Spring??

... want Dependable, Complete UNUSUAL SPRING SERVICE?

At LEWIS you will find . . .

... spring engineering assistance

... precision manufacturing

. . . low ultimate cost

... prompt delivery

Yours for the Asking

Just send us specifications and let us quote on your spring or wireform job ... or tell us your spring problem and we will help you with our specialized experience to assure you of getting the RIGHT springs at the lowest cost with highest quality for your products.

LEWIS SPRING & MANUFACTURING COMPANY 2648 West North Avenue, Chicago 47

Ask to see a Lewis Representative for Prompt, Unusual Service

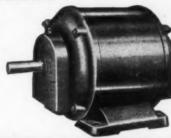


Design Engineers Specify

VALLEY MOTORS

Because -

- They offer more flexibility in power planning.
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- They meet all operating conditions where hazards of liquids, chips, etc., dropping into the motor are involved; as well as splash conditions.
- Being made in ½ to 75 h. p. sizes, they offer wide adaptability.





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ACCURACY at the FINISH

WITH A CINCINNATI Time Recording System

The quality of workmanship plus the quality of performance in Cincinnati Time Recorders assures

you absolute accuracy in your payroll records. There is no room for disputes or misunderstanding. Their long life, efficient service make them less expensive in the long run.

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THE CINCINNATI TIME RECORDER CO.



Rom specially prepared quality controlled Garlock materials experienced craftsmen mold Garlock Chevron, the automatic packing with the exclusive hinge-like construction.

The greater the pressure the tighter it packs; as pressure decreases the packing contracts. Friction on the rod and on the packing itself is thereby reduced to a minimum ... Specify GARLOCK 430 Chevron for hydraulic service; 431 for oils at low temperatures; 530 for steam, air or gas; 531 for hot oils.

THE GARLOCK PACKING COMPANY PALMYRA, N.Y.

In Canada: The Garlock Packing Company of Canada Ltd., Montreal, Que.







The U.S. Bureau of Standards, Circular #80, says, "... by far the best" protective metallic coating for rust-proofing iron or steel is ZINC. Zinc, in the form of galvanizing, protects against rust in TWO WAYS: First, by simple coverage, with a sheath of rust-resistant metal... Second, by electro-chemical action, or "sacrificial corrosion." That's why industry has long depended on ZINC to stop rust—cut costs—save materials. Heavy coatings pay—for the heavier the coating, the better the protection, the longer the service life and the lower the cost.



The "Seal of Quality", shown above, is the yardstick of economy in buying galvanized sheets. It signifies at least 2 oz. of Zinc per square foot!

FREE BOOKLETS

WRITE TODAY for these valuable booklets; (1) Repair Manual on Galvanized Roofing & Siding (2) Facts about Galvanized Sheets (3) Use Metallic Zinc Paint to Protect Metal Surfaces.

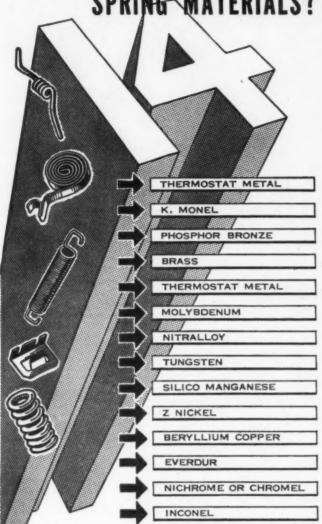
American Zinc Institute

Room 2615-35 East Wacker Drive, Chicago 1, Illinois



LARGEST INDEPENDENT MANUFACTURERS AND CUTTERS OF FELT

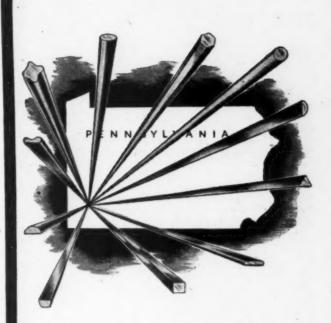
DO YOU KNOW WHEN AND WHERE TO USE THESE 14 SPRING MATERIALS?



Somewhere in this list may lie the answer to better spring performance for your mechanism. Based on a knowledge of what these materials will do under conditions of corrosion, atmospheric changes or conductivity, Raymond engineers can recommend springs designed and built for specific service. Check your specifications with Raymond today for safety and service.



PAGE Stainless WIRE



Yes, a lot of the stainless steel wire that is serving the country as part of manufactured products, came from Monessen, Pa.

That's PAGE headquarters.

During the many years we have been working with stainless, we have learned much about the applications of stainless steel wire in manufacture.

That's why we suggest that when you have a problem involving wire, it will pay you to ...

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PAGE STEEL AND WIRE DIVISION AMERICAN CHAIN & CABLE

PURCHASING MAN'S LIBRARY

A member of our purchasing department is interested in studying present day methods and systems of purchasing. We would like you to refer us to possible sources of correspondence or extension work along this line, with a possible source for recommended books.

-R. A. Jensen, Purchasing Dept. Queen City Stove Works Albert Lea, Minn.

Approximately 100 business schools, colleges and universities have courses in purchasing, or purchasing is a part of their business administration curriculum, but we know of no correspondence or extension courses. Among the books on purchasing are the two-volume "Handbook of Purchasing Policies and Procedures," issued only to members by the N.A.P.A.; "Industrial Purchasing, Principles & Practice," by Dr. Howard T. Lewis, published by Business Publications, 332 So. Michigan Ave., Chicago, price \$5; "Industrial Purchasing," by E. L. Cady, published by John Wiley & Sons, Inc., 440 Fourth Ave., New York, price \$2.75. The series by Stuart F. Heinritz, editor of PURCHASING, "Basic Principles of Purchasing," which was originally published in PURCHASING, is available in booklet form. The price is \$1, and the publisher is PURCHASING, "Ed.

"INSTITUTION" APPLICANT

Can you send by return post your forms and proposal for membership in your institution?

-James N. Wilkes, 73 Monchagrin St. San Fernando, Trinidad, B.W.I.

Membership in our "institution", meaning a subscription for PURCHAS. ING, costs \$3 a year (\$5 for two years). Extra Postage, foreign, \$1 per year. If you have in mind membership in the National Association of Purchasing Agents, write to the N.A.-P.A. at 11 Park Place, New York.—Ed.

PRODUCTION FINISHING

We make finishing reels and other items requiring the finishing of a great variety of small parts in stainless steel, aluminum, and brass. Where can we get information on the production polishing of these parts?

—B. A. LaBerge, Material Supervisor

-B. A. LaBerge, Material Supervise
Langley Corporation
660 Second Ave.
San Diego 1, Calif.

Best source is makers of metalpolishing equipment. See "Finishing Metal Products," by Simonds and Bregman, price \$4, published by McGraw-Hill Book Co., 330 W. 42nd St., New York. Specialized industrial journals are "Metal Finishing," 11 W. 42nd St., New York; "Industrial Finishing," 1142 N. Meridian St., Indianapolis, and "Products Finishing," 431 Gardner St., Cincinnati.—Ed.

A B C OF PURCHASING

The article, "The A B C of Purchasing," which appeared in the August 1946 issue of PURCHASING is so incisive and so full of meat that I distributed reprints of it among our department heads and the men at present teaching salesmanship. The author certainly knows the story."

Paul R. Anders, Dean of School of Business Administration Fenn College Cleveland, Ohio

"BASIC PRINCIPLES OF PURCHASING"

Where can I procure a copy of Stuart F. Heinritz's "Basic Principles of Purchasing?" Also, I should like to know the subscription price of PURCHASING.

At present I am teaching a course in Industrial Management during which I am able to devote about one week only to the subject of purchasing and the various problems connected with it. A number of students, however, have asked that additional work in purchasing be offered. Hence, I am anxious to have at my disposal a good journal in the field since I know by past experience that such publications are the source of much valuable information.

H. E. Kubly, Assistant Professor The University of Wisconsin Madison, Wisconsin

The 100-page booklet, "Basic Principles of Purchasing," costs \$1. A year's subscription for PURCHASING is \$3.—Ed.

BOUQUET

I wish to tell you how much I enjoy PURCHASING magazine. The various articles by the leading purchasing agents throughout the country are both constructive and educational. The entire magazine is full of helpful material for everyone in the purchasing field.

Harold P. Tuttle, Supplies Purchasing Agent Rocky Mount Mills Rocky Mount, N. C.

"A REBEL YELLS"

Who publishes the book, "A Rebel Yells," by H. Frederick Wilkie, referred to in your February issue?

B. W. Forkner, Purchasing Agent The Ohio Brass Company Mansfield, Ohio

"A Rebel Yells" is published by D. Van Nostrand Company, 250 Fourth Avenue, New York.—Ed.

"WHAT IS CORRECT ADDRESS?"

"Peirce Wire Recorder Corp., Chicago, III., is referred to on page 259 of your January issue. We sent a letter to that company and was returned to us with a notation "Insufficient Address". What is correct address?

L. Hase, Methods Engineer The Gevaert Company of America, Inc.

Peirce Wire Recorder Corp. is at 1328 Sherman Ave., Evanston, III.

"HOW BUYERS BEHAVE"

Will you kindly advise whether it would be possible to obtain 35 reprints of your article "How Buyers Behave in a Buyers' Market," and the article on "A Purchasing Manual", both in your February issue.

I would like very much to distribute these articles to members of a class in Production Management, as we devote considerable attention to purchasing and purchasing policies in this course.

Karl A. Hill, Ass't. Professor of Management and Industrial Relations Dartmouth College Hanover, N. H.

No reprints were made of "How Buyers Behave in a Buyers' Market," but several clippings are being mailed to you. The article, "A Purchasing Manual," was reprinted and 35 copies have been sent.—Ed.

PINKER

We urgently request information as to where we can obtain the "Clean Cut" Pinker. We are almost certain it is manufactured somewhere in New York.

H. H. Hermann, Director of Purchases Maxant Button & Supply Co. Chicago, III.

We have inquired of all four manufacturers of pinking machinery in New York City. None is acquainted with the "Clean Cut" Pinker.—Ed.

CORRECTION

Referring to the Article entitled "Purchasing Is A-Two-Way Job", which appeared in your February issue, the author, Mr. Goettler, misunderstood and misquoted me on the subject of "Scrap Disposal." The process of sorting various types of scrap metals has been followed for a good many years and the statement "Under direction of Miss Cummings, much progress has been made toward the more efficient handling of this responsibility", is certainly a reflection on the former management and I would like to correct this statement. For a good many years scrap materials on the C. A. & E. R. R. have been sold on a competitive basis and sorted according to the various classifications.

While I did make the statement that scrap material is something on which the Rail-road could lose considerable money if not properly handled, I did not want to convey the idea that the way in which it is handled is something new to us, but merely following the same policies practiced by the former management.

K. F. Cummings, Purchasing Agent Chicago Aurora & Elgin Railway Co. Wheaton, Illinois Too many rejected parts are reducing output. Improve standards and we'll raise production.

DOC. PAX Opens a Production Boltleneck

Find out why there's so many bum parts. Shipments are 'way down and customers are returning too much.



What seems to be your trouble? My hands are so rough and cracked I can hardly handle a mike anymore.

Any ideas on what's causing all the rejects? yes! Most of the guys fumble their tools. Find out what's causing hand trouble around here and your problem's licked.



Gotta get there

fast. Every extra

minute means less production. sure gets my hands cleaner.

Yes, and it keeps my skin from drying out

Everybody's work is better since we're using Paxno more gripThanks to Pax Heavy Duty, production's up, rejects are almost nil. Doc Pax comes through again!





Paxlanosav Blended Emollient resists dryness, chapping, other forms of industrial dermatoses. ping, other forms of industrial dermatoses.

Plenty of thick suds and specially processed vegetable scrubber cleans thoroughly, easily, fast and safely.

Took in cleaning officiency is achieved without skin.

scrubber cleans thoroughly, easily, fast and safely.

Tops in cleaning efficiency is achieved without skinpunishing free caustics or abrasives.

punishing free caustics or abrasives.

Paxtanosav Heavy Duty is extra-economical because so little goes so far. Convenient cartons prevent waste, save time, store easily.

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PAXLANOSAV* HEAVY DUTY GRANULATED SKIN CLEANSER

G. H. PACKWOOD MANUFACTURING CO.

For Unusual and Special Skin Cleansing Tasks PAX SULPHONATED OIL SKIN CLEANSER

Contains Lanolin

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in occupations in which workers' hands come in contact with severe skin-defatting solvents, degreasing compounds, highly alkaline or other skin-irritating chemicals, Pax Sulphonated Oil Skin Cleanser can be used to supplement General Purpose Pax Heavy Duty Granulated Skin Cleanser. Of highest dermatological quality, non-alkaline, mildly acid, bland, soothing, non-sudsing, Pax Sulphonated Oil Skin Cleanser offers worker protection unexcelled by any other product of its type.

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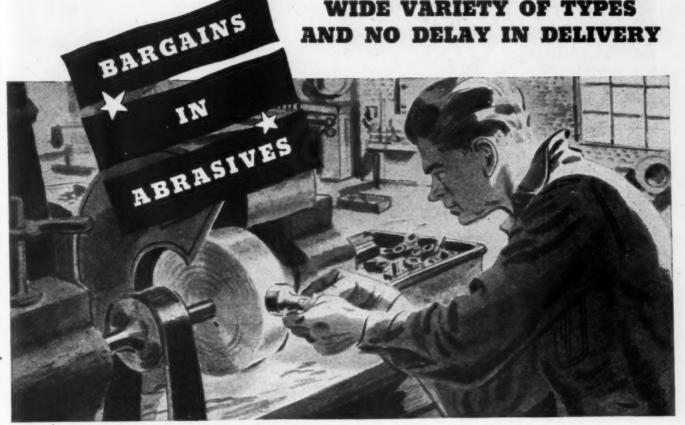
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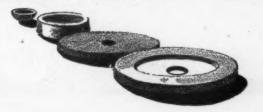
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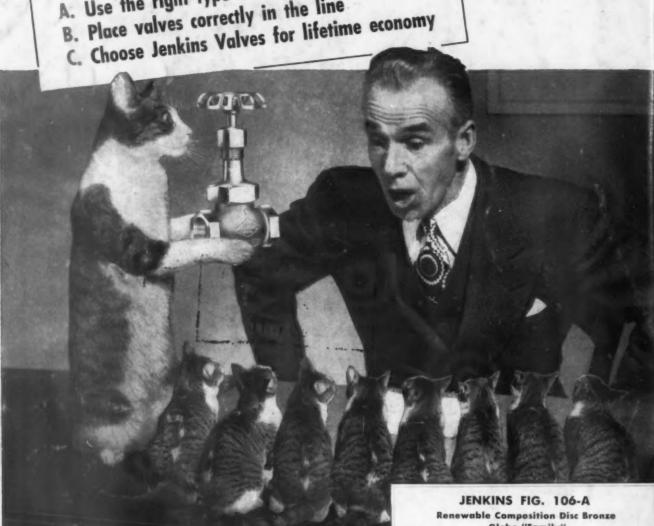
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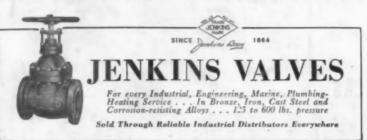


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